The Occupational Outlook

A Current Supplement to the Occupational Outlook Handbook

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UREAU OF LABOR STATISTICS
n cooperation with
ETERANS ADMINISTRATION

The Occupational Outlook

UNITED STATES DEPARTMENT OF LABOR
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Bureau of Labor Statistics
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This publication is issued to provide counselors with current information on employment trends and outlook, based primarily on the continuous research and statistical programs of the Bureau of Labor Statistics. It supplements and brings up to date information in the Occupational Outlook Handbook. It is prepared with the advice and assistance of the --

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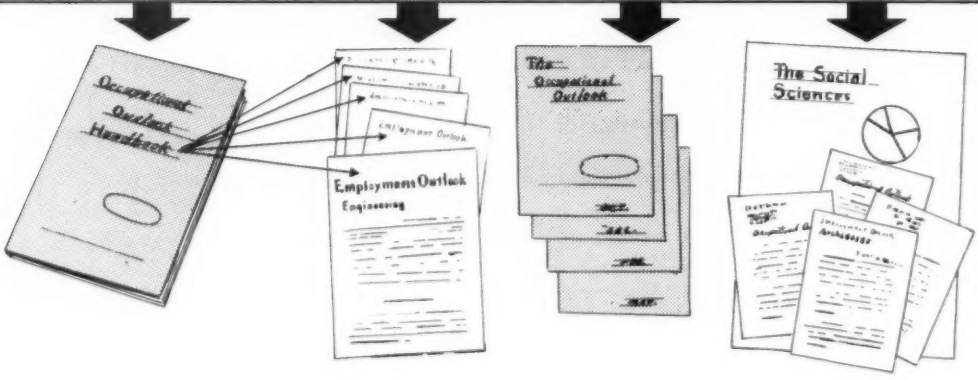

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BUSINESS CYCLES AND THE CHOICE OF A CAREER

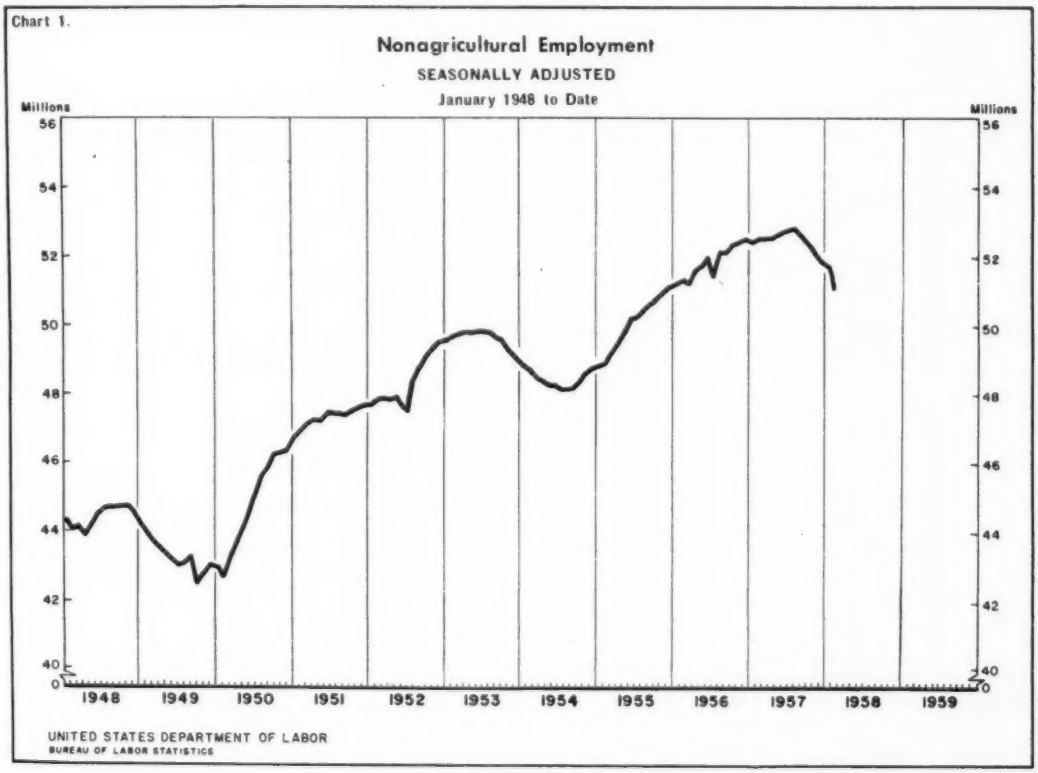
by Joseph S. Zeisel

A young person choosing a career should make plans that will serve his best interests over the entire span of his working life. In occupational outlook information for use in guidance, the major emphasis should therefore be on the long-term trends which will determine the employment outlook for many years into the future without undue emphasis on the immediate, and possibly temporary, economic situation confronting the young graduate when he leaves school.

In evaluating long-range employment trends in different industries or occupations, it is generally assumed that conditions of high-level employment will exist, as they have in most of the years since 1940. However, employment conditions do vary from year to year. In fact, temporary declines have occurred relatively frequently in our history, although not at regular intervals. Since the end of World War II, we have gone through two periods of temporary declines in economic activity lasting about a year each; one in 1949-50 and the other in 1953-54. Again during late 1957 and early 1958, economic activity began to decline in a number of industries and unemployment rose.

However, short-term recessions do not appear to have significantly affected the long-term employment trends in the United States. Chart 1 indicates,

Chart 1.



for example, that after the 1949-50 and 1953-54 recession, total nonagricultural employment returned to approximately the long-term rate of growth. Short-term recessions are for the most part ignored when making projections of employment levels by industry or occupation say, 10 or 20 years ahead. Where, in the past, they have affected employment growth, this is taken into consideration in analyzing long-term trends.

While it may be said, in general, that short-term fluctuations in the economy do not significantly affect overall long-term trends, a study of the effects of recent recessions on industry and occupational employment levels can offer guidance counselors and students valuable additional insight into the job world. For example, we may be able to shed some light on questions such as: Do employment levels or hours of work fluctuate more widely in one industry than in another during periods of recession? Are certain occupations harder hit than others during temporary downturns in economic activity? The answers to such questions are of vital concern to young workers.

Industries Most Affected by Recession

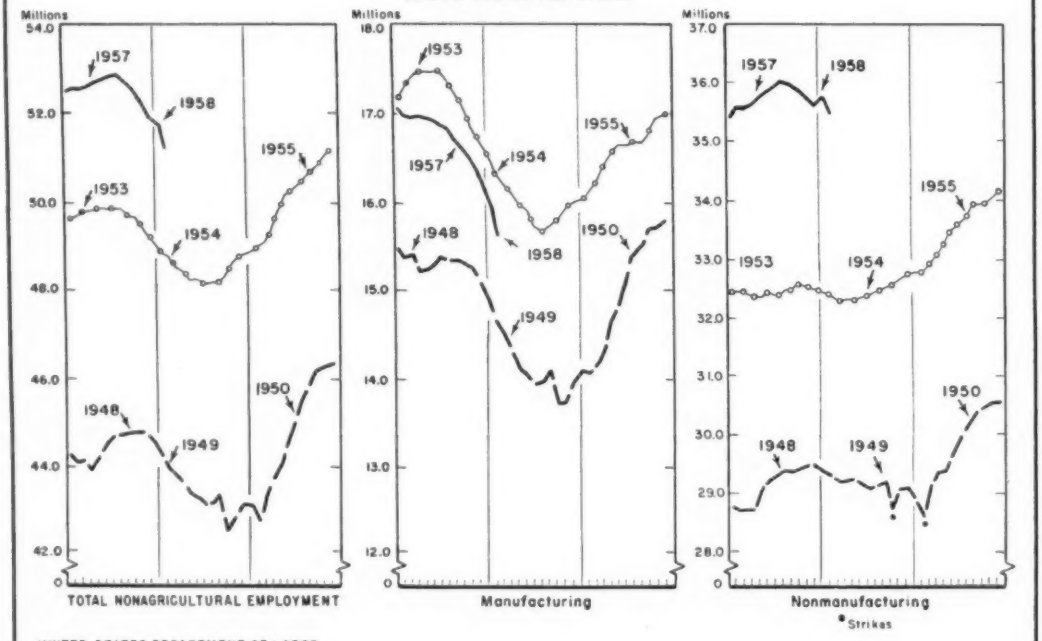
One of the most important conclusions that may be made from studying the employment effects of recent economic recessions, as well as earlier ones, is that employment in manufacturing, mining, transportation, and, to a lesser extent, construction, tend to fluctuate most widely in reaction to changes in the level of economic activity. On the other hand, service, finance, government, and, to some extent, trade, have shown considerable employment stability, and have been significant moderating influences in the economy. Charts 2 and 3 present the employment reaction in several major industry groups in the two post-World-

Chart 2.

Employment in Selected Nonagricultural Industries

SEASONALLY ADJUSTED

1948-50, 1953-55, 1957 to Date



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War-II recessions and in the current economic downturn, and graphically illustrate this point.

In the current economic situation, total nonagricultural employment by February 1958 had declined by about 1.7 million (seasonally adjusted) from its August 1957 peak. The decline in manufacturing employment during this same period was about 1.2 million. The seasonally adjusted index of aggregate weekly man-hours in manufacturing, mining, and construction--the goods-producing sector of the economy--declined by about 13 percent over this period, reflecting the sharp decline in the workweek as well as the drop in employment.

Within manufacturing, employment in durable-goods industries has tended to be most severely affected in times of declining economic activity. There are several reasons for this. Often, contraction in the volume of business activity is associated with cuts in capital-goods expenditures (industry expenditures for plant and equipment). This affects mainly producers of durable goods, such as steel, machinery, transportation equipment, and fabricated metal products. On the consumer side, when workers become unemployed, or when their paychecks are reduced by a shorter workweek, they usually attempt to maintain their expenditures for housing, food, and clothing (nondurable goods), while deferring their expenditures for new automobiles, washing machines, television sets, and similar equipment (durable goods).

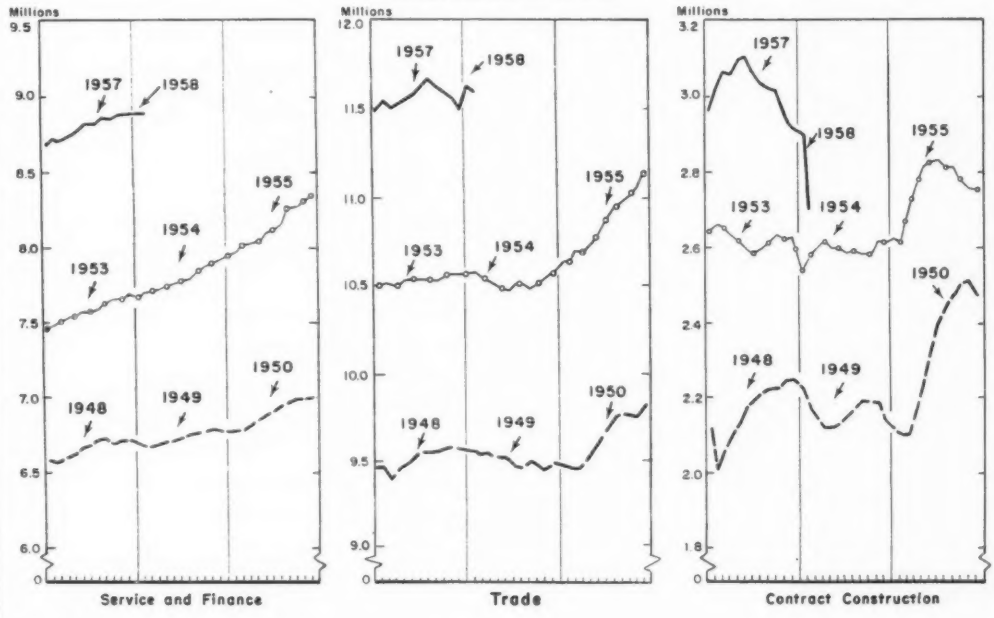
In addition, purchases of new homes often decline during periods of economic recession, and construction employment drops. This cutback in construction further aggravates the decline in durable-goods manufacturing industries, since fewer new homes mean less demand for all of the durable equipment that goes into a new

Chart 3.

Employment in Selected Nonagricultural Industries

SEASONALLY ADJUSTED

1948-50, 1953-55, 1957 to Date



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house--that is, refrigerators, stoves, furnaces, plumbing equipment, and so forth.

An illustration of this pattern can be seen in the current recession. Total manufacturing employment (seasonally adjusted) declined by 1.5 million between December 1956--the peak month preceeding its downturn--and February 1958. Of this decline, almost 1.2 million, or about 80 percent, occurred in durable-goods manufacturing industries.

Implications for Vocational Guidance

A student might ask why--if employment is subject to a much greater cutback in some industries than in others during a recession--should anyone choose a career in an industry subject to relatively wide fluctuations in employment? There are several answers to this question--some personal and some economic. In selecting a field of work, a young person should, of course, seek one well suited to his particular aptitudes and interests, and sometimes personal considerations of this sort outweigh economic factors. From an economic point of view, in times of expanding employment, it is generally the durable-goods manufacturing industries that have grown most rapidly, and young people, of course, tend to enter industries where jobs are available. The nondurable-goods industries have, with a few notable exceptions, been a much less dynamic sector of the economy over the last decade or so. Industries such as food products, tobacco, textiles, rubber, and leather have been growing very slowly, if at all, for a number of years while, since the end of World War II, there has been a relatively more rapid growth in such durable-goods industries as metals, electronics and electrical machinery, and aircraft.

The second economic factor that must be taken into consideration is that pay is generally higher in the durable-goods industries. Hourly earnings in these industries in 1957 averaged approximately 17 percent higher than hourly earnings in nondurable-goods industries. Of course there are exceptions. Average hourly earnings in some durable-goods industries (for example lumber and furniture) are below the total manufacturing average. On the other hand, some nondurable-goods industries (such as petroleum and coal products, printing, chemicals, and rubber) enjoy average hourly earnings that are well above the total manufacturing average. But in general, earnings in durable-goods industries are higher than in nondurable-goods industries, and the differential has widened over the past decade.

The relationship observed within manufacturing between higher hourly earnings and relatively unstable employment during recessions is also evident when the major industry groups are compared. For example, as we have indicated, relatively larger cutbacks in employment during recessions occur in manufacturing, transportation, mining, and contract construction, while the more stable employment areas are finance, insurance, and real estate, services, communications and public utilities, and government. As the table indicates, earnings in the less stable industries tend, in general, to be higher. In every case, hourly earnings in these industries for 1956 were above the all-industry average.

The situation that has been described would seem to leave a young prospective worker in somewhat of a

Average annual earnings per full-time employee, by industry, 1956

Industry	Average earnings
All industries (private)	$ 4,049
Agriculture, forestry, and fisheries	1,676
Mining	5,004
Contract construction	4,643
Manufacturing	4,582
Wholesale and retail trade	3,803
Finance, insurance, and real estate	4,226
Transportation	5,032
Communications and public utilities	4,614
Services	2,927

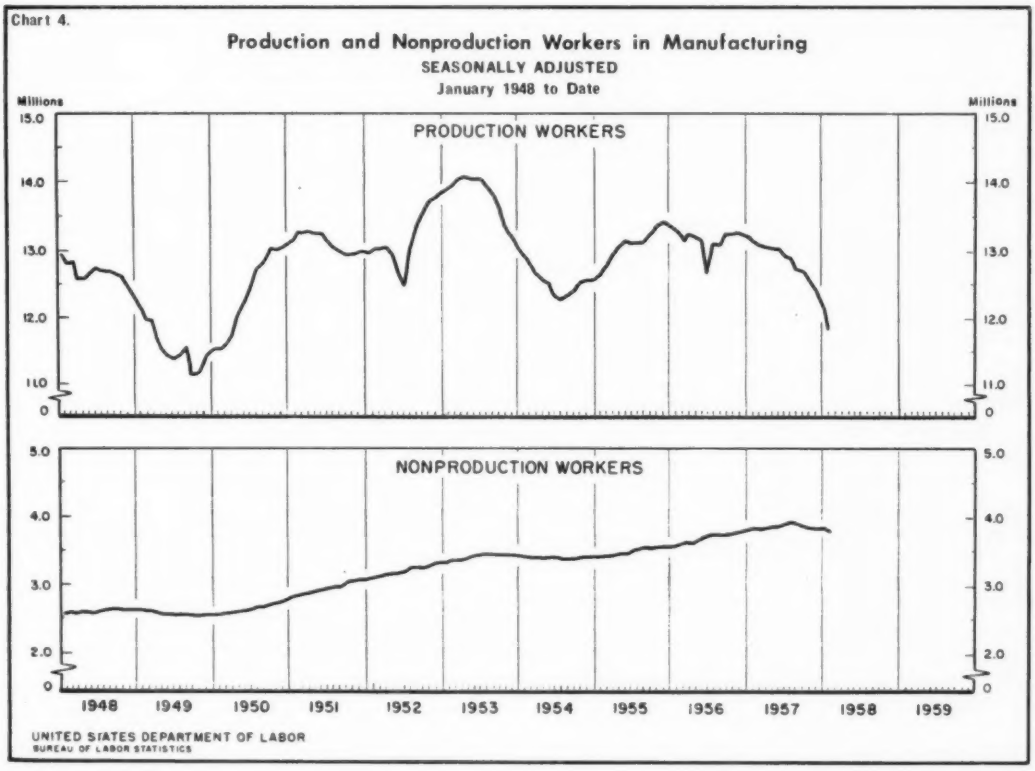
dilemma. He would, as the saying goes, have to pay his money and take his choice: choose an expanding industry which promises higher earnings but which has a history of relatively greater instability and possibility of unemployment, or seek employment in a more stable industry, with less chance of unemployment but also less opportunity in terms of industry growth and earnings.

However, this greatly oversimplifies the problem facing the individual job-seeker. Earnings and stability of employment depend not only on industry, but also on occupation and degree of skill. This is clearly indicated in charts 4 and 5. For example, although total manufacturing employment declined by approximately 1.3 million from February 1957 to February 1958, almost all of those who lost their jobs were production workers. The number of nonproduction workers declined by only 20,000 during this same period, remaining at about 3.8 million. The nonproduction worker group includes a relatively large proportion of skilled occupations such as professional workers, including engineers and technicians, as well as clerical, sales, and administrative workers.

In the last 10 years, the number of nonproduction workers in manufacturing has been growing at a rate 10 to 20 times as great as the number of production workers.[1] The expansion in nonproduction worker employment in manufacturing has accounted for four-fifths of the the total increase in employment in this sector of industry over the last decade. Thus, within manufacturing, there are a group of relatively better trained persons whose numbers have been increasing very sharply and whose jobs have been re-

[1]For a thorough discussion of this development, see White-Collar Jobs in Manufacturing (in The Occupational Outlook, October 1957, Vol. 1, No. 3).

Chart 4.



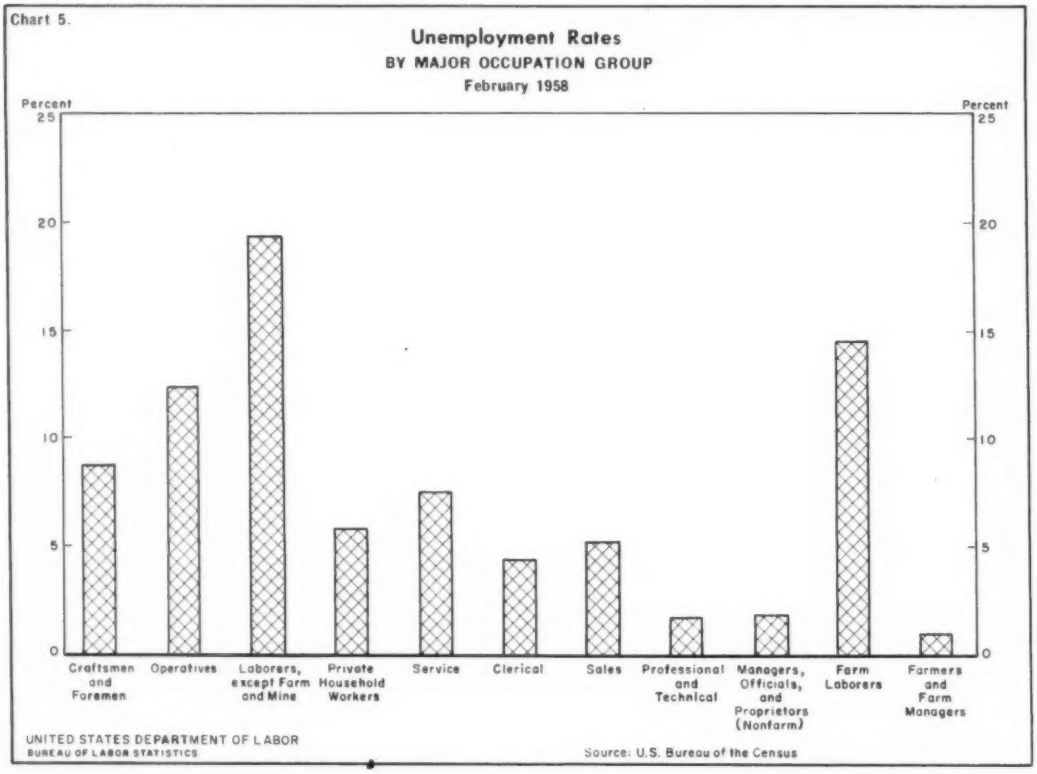
latively secure during periods of recession and high employment alike.

These occupational groups have been growing proportionately faster than total employment in other sectors of the economy as well. In the last 10 years, employment in the occupations classified as professional, clerical, sales, and administrative has grown from under 20 million to over 26 million, or from 36 percent of all persons in the civilian labor force to about 40 percent.

The rapid growth and relatively greater stability of employment of persons in occupations requiring greater skill or training is indicated by chart 5 which shows unemployment rates by occupations for February 1958. Among nonfarm occupations, the highest unemployment rate was for the least skilled group--laborers. Semiskilled operatives had a somewhat lower unemployment rate, and craftsmen and foremen lower still. As a whole, these groups, which in general encompass most manufacturing production workers, had the highest unemployment rate of all nonagricultural industry occupations. Service, sales, and clerical occupations had appreciably lower unemployment rates than the manufacturing occupations, and managers, officials, and proprietors, and professional and technical persons had still lower rates of unemployment.

In summary, it is obvious that while some industries offer greater stability of employment during recessions than others, individuals in occupations requiring a high degree of skill education, or experience are less subject to layoff in any industry, whatever the economic situation. Thus, it would seem that a worker may be able to have his cake and eat it too--through education and training. Some fortunate workers who choose wisely can attain positions of relative security with high earnings in expanding industries.

Chart 5.



MOUNTING PRESSURES ON THE NATION'S COLLEGES

by Ernest V. Hollis and Wells Harrington*

U. S. Office of Education

Many high school graduates this year--and in the years ahead--will be unable to enter the college or university of their choice. Enrollments in institutions of higher education have been increasing rapidly every year since 1951, and the number of students seeking enrollment is expected to reach unprecedented heights by 1965. Most colleges are already crowded, and the additional facilities planned so far will by no means meet the expected need.

Institutions are more and more being forced to choose from an ever-growing number of applicants, and increasingly, only the students who are best qualified--academically and otherwise--will have good prospects for being admitted to the college of their choice. Counselors should therefore advise students planning to attend college to: (1) take a high school program that is recognized as standard for entrance into accredited colleges, and (2) try to make high enough grades to put them in the upper quarter of their graduation classes. Students with this preparation will have the best chances for entering the colleges of their choice and getting the training they need for their chosen careers.

High school graduates who find they cannot enter their chosen institution must consider such questions as: What other types of institutions offer the program I need? A university? A liberal arts college? A State teachers college? A junior college? Can I meet the entrance requirements? What are the educational and living costs? What types of scholarships and part-time employment opportunities are available? What are the advantages and disadvantages of attending a publicly controlled institution...a privately controlled one? Will I have a better opportunity to enroll in a local college or one in another city?...in another State?...in another region? Would it be better to start my college career now or to work for a while and go to college later? Should I enter the armed services now and go to college later? These considerations are a characteristic part of sound planning for higher education, but their importance is being intensified by the increasing competition for college admission.

To provide answers to some of these questions, this article shows how much enrollments are increasing, which types of institutions are growing most rapidly, and how current plans for expanding college facilities are expected to fall short of needs, even if these facilities are used to capacity.

Enrollments Are Rising Rapidly

More than 3 million students[1] were enrolled in the Nation's 1,890 institutions of higher education in the fall of 1957. Of these, about 730,000 were entering college for the first time. Both total and first-time enrollments reached an all-time high in 1957, after increasing steadily since 1951. During this 6-year period, total enrollment and first-time enrollment increased about 45 and 55 percent, respectively.

*Ernest V. Hollis is the Director of the College and University Administration Branch: Wells Harrington is Chief of the Research Advisory Service, Research and Statistical Services Branch.

[1]This figure includes all students in continental United States and territories whose current study program consisted principally of work creditable toward a bachelor's or higher degree--both full-time and part-time, day and evening, on-campus and extension, special or unclassified, as well as regular, graduate, and undergraduate students. Excluded were students taking (1) courses at home by correspondence, radio, and television; (2) "short courses"; (3) individual lessons only, as in art, music, speech, etc.; (4) students enrolled in 1-, 2-, and 3-year terminal post-high-school programs.

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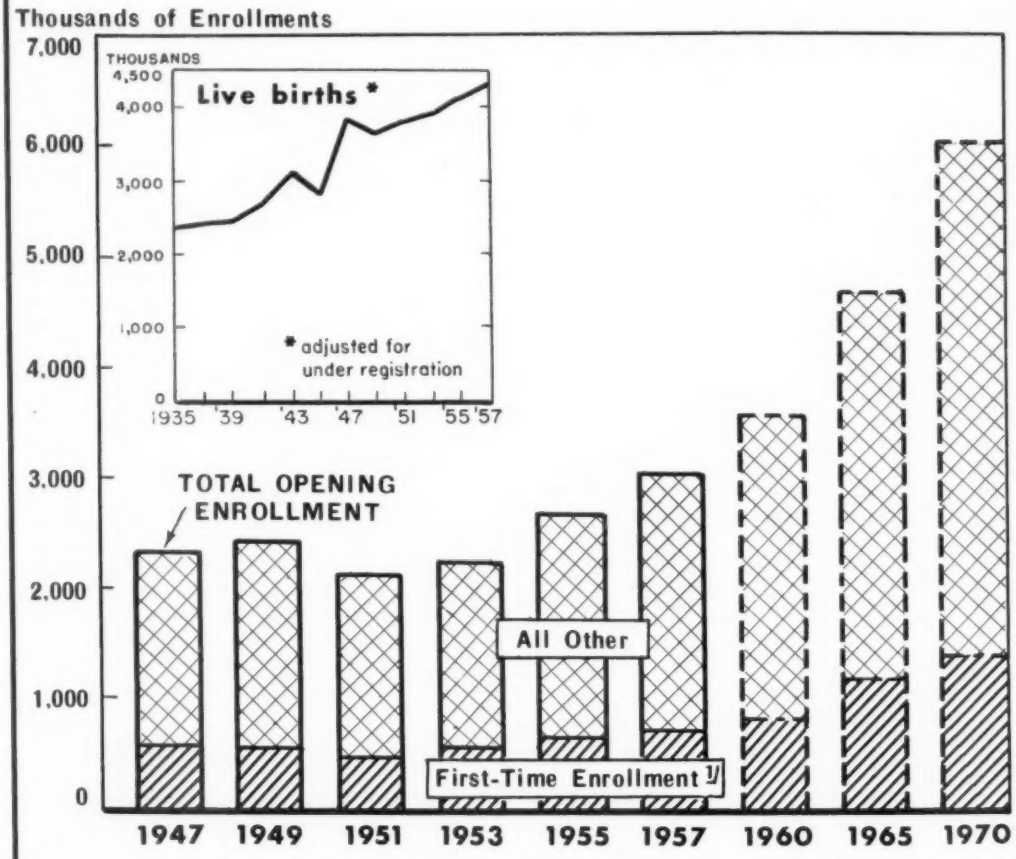
The swelling tide of children now attending elementary and high schools make it certain that enrollments will continue to rise during the next decade. Total enrollments are expected to reach 4.7 million in 1965, and about 6 million by 1970 (chart 1).

Increases in college enrollment result from a number of underlying factors. The increase in the college-age population in recent years is due to the marked rise in birthrates which began during the late depression years. Those born during that period are now reach-

Actual and projected total enrollment and first-time enrollment 1/ in higher educational institutions . . .
Selected years, fall of 1947 through 1970



1/ Students enrolled for the first time in programs consisting principally of work creditable toward a bachelor's or higher degree.

Data from 1955 on exclude enrollments in 1-, 2-, and 3-year terminal programs in technical institutes and similar institutions. These figures are very slightly understated compared with enrollments before 1955.

Source: U.S. Department of Health, Education, and Welfare, Office of Education

ing college age. It is estimated that about 35 percent of all college students enter at 18 years of age, 30 percent at 17, 15 percent at 19, 5 percent at 20, and the remainder at either younger or older ages. The greatest number of first-time college students in the fall of 1957, when the record high in first-time enrollments was reached, were 18 years old having been born in 1939, and a significant proportion were older.

Enrollments will continue to rise rapidly as the prewar babies reach college age, mounting to more than 900,000 by 1961, slowing down in the early 1960's because of the lower birth-rates during World War II, and then turning upward sharply because of the tremendous increase in births following the war. By 1965, or thereabouts, the number of students trying to get into college is expected to reach unprecedented heights; first-time enrollments may reach 1.2 million in 1965--an increase of about 60 percent over 1957, according to the college enrollment forecasts of the U. S. Office of Education.

The number of births about 18 years ago is, of course, the basic factor affecting the size of today's college-age population. Also important is the increasing proportion of babies who reach college age because of the remarkable gains society has made in health and medicine. However, factors other than sheer physical survival are responsible for the increasing numbers of students seeking admission to institutions of higher education. First, the percentage of boys and girls attending high school has gradually increased. Second, the percentage of youngsters that graduate from high school with adequate preparation for admission to college has also grown. In addition, the proportion of high school graduates who want to enter college has also increased.

To add to the pressures on the Nation's colleges, the proportion of college students who remain in college and graduate has also increased in recent years. This decline in the dropout rate is partly due to better academic preparation and sound planning for a college career; the availability of financial aid in the form of scholarships, part-time employment opportunities, and cooperative work-study programs; and a growing awareness of the value of advanced education both in terms of personal satisfaction and material rewards.

Enrollments in Some Types of Institutions Are Growing Faster Than in Others

Higher educational institutions are classified by the U. S. Office of Education into seven types: Universities, liberal arts colleges, junior colleges, and the following types of separately organized professional schools: teachers colleges, technological schools, theological and religious schools, and other professional institutions. All schools included in the study, except junior colleges, are 4-year, degree-credit institutions offering programs leading to a bachelor's or first-level degree in a given profession. Junior colleges offer 2-year programs of degree-credit work in addition to nontransferable or terminal occupational programs.

The majority of first-time students enroll in 4-year institutions, primarily in universities and liberal arts colleges. In 1957, universities enrolled 33 percent of the first-time students and liberal arts colleges enrolled 28 percent; the remaining 4-year institutions together enrolled only 16 percent. Junior colleges enrolled 23 percent of the first-time students. (See table.)

All types of institutions have enrolled an increasing number of first-time students in recent years. However, the rate of increase among the different types of institutions has varied greatly. Junior colleges have increased first-time enrollment proportionately much faster than 4-year institutions. In every year since 1952, the 4-year schools taken as a group have gained proportionately less than institutions of higher education as a whole, and junior colleges have gained more. Liberal arts colleges, like universities, have gained in actual numbers of first-time students, but are just holding their own percentagewise. The relative position of both teachers colleges and other separately organized professional schools has been improv-

First-time enrollments, by type of institution, fall 1957

(Aggregate United States)

Type of institution	Number of institutions	First-time enrollment	
		Number	Percent distribution
All institutions	1,764	729,725	100
Four-year institutions ..	1,271	561,653	77
Universities	141	242,373	33
Liberal arts colleges .	726	204,929	28
Separately organized professional schools:			
Teachers colleges.	197	74,667	10
Technological schools	42	20,451	3
Theological and religious schools .	77	4,820	1
Other	88	14,413	2
Junior colleges	493	168,072	23

[1]Does not include professional schools (of which a large number are theological) which admit only students who have had some previous college work. Such schools cannot, by definition, have any first-time enrollees.

ing, whereas that of theological and religious schools has declined until 1957.

The uptrend in enrollments in junior colleges reflects a rapid expansion of such institutions. Not only are junior colleges building facilities faster than 4-year institutions, but a larger proportion of these new facilities is for instructional purposes; fewer dormitories are needed because a large percentage of junior college students live within commuting distance. Consequently, the enrollment pressure on junior colleges is less severe at the moment than is the case with 4-year institutions. The high school senior who is having trouble finding a college which will accept him, and one which is in turn acceptable to him, should not overlook the junior college.

Expansion of College Facilities Is Not Keeping Pace

In comparison with the upsurge in the number of students seeking admission to college, additional college facilities are being added very slowly. New structures, utilities, and other facilities are being built at the rate of about $3/4 billion a year, which is just about enough to keep pace with the replacement of temporary and obsolete structures. Anticipated needs would require building at the rate of $1\frac{1}{2}$ billion or $2 billion a year, according to a forthcoming report by the U.S. Office of Education.

To provide adequate facilities for enrollment expected between now and 1970, colleges and universities need an additional $18 billion. Approximately $7 billion of the total would be required to replace temporary structures erected from war housing during the post-World-War-II emergency resulting from enrollment of veterans, and to replace obsolete buildings that are health and fire hazards. An additional $3 billion of the total would be required to provide land, roads, parking, utilities, and the like. This would leave only $8 billion for the expansion of existing college plants. Such a sum would provide for only about half of the expected increases in enrollment. It follows that, either public or private agencies will have to provide additional facilities if the coming wave of college applicants is to be accommodated.

Fuller Use of Existing Facilities Would Not Help Much

A surface examination of recent data on unused capacity may give the impression that increased utilization of existing facilities might help considerably in meeting anticipated needs. Unfortunately, this is not true. A recent study showed that the Nation's colleges and universities, taking into consideration both instruction and housing facilities, estimated that they could have accommodated an additional 407,000 students in the spring of 1956. It is expected that, by the fall of 1958, the amount of vacant space for students will have been cut to only about 200,000 bona fide openings, or half the figure of a year earlier. In addition, much of this space will be in smaller colleges which are not very well known and which students are traditionally reluctant to enter.

CAREERS IN REHABILITATION*

by Miriam Keeler
Women's Bureau

The rehabilitation of disabled persons is a rapidly growing field of work which is demanding increasing numbers of trained personnel. Restoring the physical, emotional, social, and economic effectiveness of disabled persons to the greatest possible extent requires workers with many different types of training and skill. Persons interested in caring for the sick or injured, in teaching, or in helping those in trouble will find these jobs especially satisfying. Women make up a high proportion of the persons employed in rehabilitation work.

Rehabilitation as a Field of Work

A vast network of public and private agencies provides rehabilitation service for disabled persons. The Federal program, originally set up in 1920, has been greatly expanded since 1954 when Congress passed a law which aimed to bring vocational rehabilitation services within the reach of all who can benefit by them. This act (Public Law 565, 83d Congress) makes funds available through the Office of Vocational Rehabilitation of the U. S. Department of Health, Education, and Welfare, for the support and expansion of basic State programs of vocational rehabilitation, broadening of services, and training of students in occupations essential for this work. The act also encourages cooperation between public and private agencies by making it possible for nonprofit private agencies to receive financial aid for approved research and demonstration projects and other purposes.

The State-Federal program of vocational rehabilitation offers diagnostic services, medical care, physical aids, vocational counseling, and job training and placement to handicapped persons of working age in order to enable them to become economically productive. This program recognizes homemaking as an occupation, and provides services to handicapped women so that they may be able to manage their homes and care for their children. All these services are administered by the State vocational rehabilitation agencies.

The number of persons rehabilitated under the State-Federal program has increased from 55,825 in fiscal year 1954 to 70,940 in 1957. More than a third of those helped were women.

The 1954 law also provides for the development of selective counseling and placement services for handicapped workers through the State employment services. By 1957, each State had a supervising counselor in charge of the Statewide program for handicapped workers. Working with the rehabilitation agencies and the State employment services to secure employer cooperation are State and local committees on employment of the physically handicapped. These committees are organized under the leadership of the President's Committee on the Employment of the Physically Handicapped.

In addition to Government agencies, long-established private agencies, such as the crippled children's societies, have also been expanding their rehabilitation services during recent years, and new voluntary organizations serving the handicapped have come into being.

All these trends have created an increasing demand for well-qualified workers in the various occupations involved in rehabilitation.

Occupations in Vocational Rehabilitation

Rehabilitation offers persons with appropriate college or professional

*This article is based on one section of a pamphlet entitled Help for Handicapped Women, prepared for publication under the joint sponsorship of the Department of Labor and the Department of Health, Education, and Welfare. The pamphlet is due to be published this month.

training many opportunities for humanitarian service, stimulating relationships, professional recognition, and advancement. This field of work also offers a person who is himself physically handicapped an opportunity for an especially rewarding career. His own experience gives him insight into the difficulties others are facing; his example often gives courage to those needing help.

The staff of a large rehabilitation agency includes specialists in a wide variety of fields, who frequently work with individual patients as a "team." The makeup of this team varies according to the needs of the disabled persons and the resources of the agency; it may include any of the following:

physiatrist
psychiatrist
orthopedic surgeon
neurologist
psychologist
nurse
physical therapist
occupational therapist
speech and hearing therapist
social worker
teacher
rehabilitation counselor

Still other types of personnel involved in rehabilitation work include employment and homemaking counselors and technicians such as prosthetists and orthotists.

For some occupations, the nature of the work is much the same whether performed in a rehabilitation organization or elsewhere. For other occupations, employment in the rehabilitation field may require special additional skills or offer distinctive work assignments. Certain types of physicians, social workers, occupational therapists, physical therapists, and teachers may be included in this category.

A physiatrist (physician specializing in physical medicine and rehabilitation) is usually responsible for the medical rehabilitation of the patient. A number of other medical specialists also devote all or a large part of their time to rehabilitation work. The physician in rehabilitation is likely to be a salaried member of the staff, whose position thus contrasts in many respects with that of the doctor entering private practice. His clientele is already established, and usually his office and equipment are provided. In addition to treating patients, he may have heavy administrative responsibilities.

A social worker in rehabilitation is a specialist who gathers the facts about a patient's disability and how it affects him and his family, their finances, and their mode of life. He or she works closely with other members of the team to use this information in developing a total plan for aiding the handicapped person.

Although only a small percentage of all social workers are employed in rehabilitation agencies, the opportunities are excellent; several hundred vacancies for social workers in this field were reported in 1956.

An occupational therapist helps disabled individuals toward recovery and usefulness by teaching them some type of purposeful activity. Occupational therapy is useful in both physical and emotional illnesses and disability. The occupational therapist in rehabilitation needs a basic knowledge of human anatomy and physiology, and the nature of diseases and disabilities, along with the technical skills necessary to give instruction in arts, crafts, and other activity programs.

A physical therapist provides treatment and special types of training for a variety of physical disabilities to both children and adults. He or she uses diathermy, ultraviolet rays, hydrotherapy, and gives massages, and special exercises. In addition, the physical therapist teaches disabled patients to walk with braces or crutches and to perform the basic activities of daily living.

The supply of physical therapists in rehabilitation is critically short of the need, and this shortage is expected to continue for some time. Openings exist in practically all types of institutions and agencies which furnish physical rehabilitation services, in practically every State.

A teacher in rehabilitation may need additional special skills, such as a knowledge of the sign language used by the deaf, or the Braille alphabet used by the blind.

Employment counselors specially trained to understand the needs of handicapped workers and to exercise ingenuity and imagination in finding the right job for them are located in the State employment offices affiliated with the United States Employment Service. These workers are called selective placement interviewers and counselors. They refer persons in need of rehabilitation to the appropriate agency; help rehabilitation counselors in the placement of their clients; and also find jobs for large numbers of handicapped persons not in need of rehabilitation. To enter this work, a person should have a least a bachelor's degree with a major in psychology or personnel administration and a good foundation in the other social sciences; a master's degree is desirable. A year or more of experience in employment counseling or personnel work is needed before a person can specialize in placement of the handicapped.

A few large agencies offering complete rehabilitation service are experimenting with the employment of homemaking counselors. In a center where there is a demonstration kitchen equipped for orthopedic or cardiac patients, the homemaking counselor may instruct patients in its use. She may devise special cooking utensils or storage shelves or work tables to meet the needs of an arthritic patient or a woman who can use only one hand. She may also work with handicapped mothers in their own homes teaching them how to simplify their homemaking tasks and their child-care procedures. The home economist, visiting nurse, or occupational therapist has a good general background for this work. A course in rehabilitation principles and methods is helpful. As no special courses for homemaking counselors have been established, each counselor must learn by experience, or by working with someone who has experience in this field.

Certain other occupations not included in the rehabilitation team are practiced chiefly in connection with rehabilitation and are closely identified with it. The prosthetist, for example, specializes in making and fitting artificial limbs; and the orthotist, in making and fitting braces and other appliances. They may serve as members of the rehabilitation team working with the patient whose limb is paralyzed or has been amputated. Training for this work requires high school graduation, followed by apprenticeship (usually 4 years) during which the trainee learns from certified members of his profession under a system of training evolved by the American Board for Certification of the Prosthetic and Orthopedic Appliance Industry. The trainee's pay increases gradually as his training program progresses.

Rehabilitation counseling and speech and hearing therapy, described at greater length in the following sections, are among the professions where the need for additional workers is most acute.

Rehabilitation Counselors

The rehabilitation counselor, in the role of friend and adviser to the disabled person, helps him to work out a plan that fits his needs, using information furnished by the patient, the medical records, and other members of the rehabilitation team. The counselor makes appointments for medical diagnosis and treatment and arranges for prevocational or vocational training as needed. When the individual is ready for a job, the counselor aids him in obtaining work that is consistent with his education, experience, interests, and physical capacity, and keeps in touch until assured that both the disabled person and his employer are satisfied.

The counselor has a sustained and personal relationship to the individuals whom he counsels. He must understand, and be sensitive to, all the factors that enter into the individual's total problem --medical, emotional, educational, economic, social, vocational. Maturity of judgment is important. In addition, the counselor must have the imagination and resourcefulness to deal tactfully with problem situations.

As the assistance of private medical practitioners, hospitals, schools, and other agencies in the community is often needed, the rehabilitation counselor is expected to maintain cooperative relationships with community agencies and be well informed in regard to local resources. In addition, he needs some knowledge of the laws relating to the rehabilitation of disabled persons, the job elements in a wide variety of occupations, and the local employment market. Usually, the counselor works closely with the State and local employment service offices, for their special placement workers can often arrange suitable jobs.

The recommended training for a rehabilitation counselor is completion of a 4-year liberal arts course in college, followed by 2 years of graduate work leading to a master's degree in rehabilitation counseling. Additional training and experience are usually needed to qualify for teaching, supervisory, or administrative responsibilities.

Some 1,150 counselors were employed in State vocational rehabilitation agencies in 1955, and the expectation was that as many as 4,500 would be needed by 1959 to meet the demand created by the expansion of the State-Federal program. A key figure in the public rehabilitation program for many years, the rehabilitation counselor is now being sought increasingly by private agencies, rehabilitation centers, and hospitals.

Speech therapist uses a mirror and tape recorder to teach patient how to speak clearly.

Speech and Hearing Therapists

The speech or hearing therapist helps patients overcome or reduce speech or hearing impairments, working usually as part of the overall rehabilitation team. He gives diagnostic tests to determine whether training in speech and hearing is needed and uses various specialized techniques to overcome defects of speech and hearing.

Because speech problems arise from both physical and emotional conditions, the therapist must understand the general physical nature of the various types of speech impairments and the psychological factors which affect speech control. For example, a child born with a cleft palate needs speech training as well as surgical care if he is to learn to speak clearly; a person with impaired hearing may need special training in order to talk clearly. The therapist must be responsive to the individual's needs, use ingenuity in meeting them, and never show impatience when progress seems slow.

In order to obtain basic certification as a speech correctionist or audiologist, a person should have at least 4 years of college, with a B. A. or B. S. degree, and be registered for a year of supervised professional experience. In college, the student should specialize in courses on the pathology of speech defects and on rehabilitation procedures. As a sequence of courses leading to certification is not offered by all colleges, students are advised to consult the American Speech and Hearing Association 1001 Connecticut Ave., N. W., Washington 6, D. C. , before deciding where to take their training. It is possible for a person to obtain basic certification in both areas.

For advanced certification, a master's or doctor's degree with 4 years of registered supervised experience is necessary.

Speech and hearing therapy is a relatively new and fast-growing profession. The American Speech and Hearing Association had about 5,000 members and associates in 1957, more than half of whom were women. The rehabilitation program has been expanding rapidly, and rehabilitation centers, hospitals, and clinics have been actively recruiting speech and hearing therapists. The demand appears certain to exceed the supply for a number of years, as more persons with speech and hearing defects are brought under treatment.

Traineeships Available

Because of the acute shortage of personnel trained in rehabilitation techniques, the Congress has authorized financial awards called traineeships to help students meet the cost of training for rehabilitation work.

The Federal program provides traineeships for professional training in rehabilitation counseling, speech and hearing therapy, occupational therapy, social work, rehabilitation aspects of nursing, and also for residency training for physicians in physical medicine and rehabilitation. Apprenticeships for training in prosthetics are also offered. Traineeships in physical therapy are not provided through Federal funds at present; but scholarships for physical therapy students are available from private organizations, notably the National Foundation for Infantile Paralysis.

A special procedure has been set up for students wishing to apply for a traineeship. The Office of Vocational Rehabilitation makes grants to universities, colleges, and other institutions engaged in teaching rehabilitation subjects. These institutions, in turn, award traineeships to selected students.

To be eligible for a traineeship award, a student must meet certain professional requirements, which differ according to the field selected, and must have been accepted for admission by an educational institution which receives teaching grants under the Office of Vocational Rehabilitation program. In addition, an applicant in any field must (1) be a citizen of the United States, or in the process of becoming one, and (2) receive no other Federal educational benefits during the period of the traineeship.

The awards are made for basic or advanced academic preparation in

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a professional field and are usually for an academic or a calendar year. The traineeships pay from $2,000 to $3,700 a year, depending on the field of study selected and the level of graduate training. If progress is satisfactory, the traineeship ordinarily may be renewed for a second year upon application to the educational institution.

For a list of the universities and other institutions making traineeship awards in a field of study, the amount of the awards, eligibility requirements, and related information, write to the Division of Training, Office of Vocational Rehabilitation, United States Department of Health, Education, and Welfare, Washington 25, D. C.

MILLIONS OF WORKERS HOLD TWO OR MORE JOBS

Millions of American workers increase their incomes by working at two or more jobs. In July 1957, an estimated 3.5 million workers held two or more jobs, according to preliminary figures from a survey made by the Bureau of the Census, U.S. Department of Commerce. Most of these workers held full-time jobs during regular working hours and part-time jobs in the evenings and on weekends. Some, however, were persons who either shifted jobs during the week or who made up a full week's work through a combination of part-time jobs.

Whatever the primary job, the secondary jobs of multiple jobholders were largely in trade and service activities, where evening and weekend work is readily available—or in agriculture. A large majority of the multiple jobholders worked at two entirely different occupations. Only 1 million held two jobs in the same major occupation group, and of these, 3 out of 10 worked on farms. Professional and technical workers were the only other occupational group in which a majority of the dual jobholders held two jobs in the same general category.

Copies of the report, Multiple Jobholding: July 1957, Series P-50, No. 79, may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D. C. Price 10 cents.

JOB CHANGING IN THE UNITED STATES

by Herman Travis

Most young people planning their future work careers expect to move directly into their chosen occupations and remain in them all of their working lives. The fact is, however, that most workers change jobs a number of times during their working years, sometimes by choice and sometimes because of circumstances beyond their control. An understanding of the extent and the kinds of job changes made by American workers may help students to make more effective adjustments to the job world.

Job changing may be good or bad, depending on how it affects the worker and the economy. Young workers without strong career preferences often find the type of work they like best through experience in different occupations or firms. On the other hand, many young persons quickly find jobs in which they can apply their talents at good wages and have good prospects for promotion. For them, ill-advised job changes can result in considerable personal hardship.

The movement of workers from job to job also enables the employer to choose and retain workers who are best adapted to perform the required work and who have the greatest potential for training and development. The entire Nation benefits, because job mobility makes changes easier in our methods of producing and distributing goods and services. The ease with which job changes can be made in this country has been one of the leading factors in the economic and social fluidity which has traditionally distinguished our system from the rigid caste structures of the old world.

Who Changes Jobs

It is important for a young person to know that job changing is very common among American workers, and will probably affect him personally at some point in his career. Of 75.4 million persons over 14 years of age who were employed at some time in 1955, approximately 8.4 million (11 percent) changed jobs one or more times during the year.[1] Young workers, particularly young men from 18 to 24 years of age, changed jobs more frequently than any other age group. (See table 1.) More than a fourth of the men and about one-sixth of the women aged 18 to 24 changed jobs at least once during 1955.

Both voluntary and involuntary factors account for the more frequent job changes of workers aged 18 to 24 than of those in older age groups. Young persons are not often employed in positions involving great responsibility, and they naturally have less job seniority than older workers. Consequently, they tend to be the first laid off when business slackens. Young workers are also

[1] These statistics on job changing are from a survey of a sample of 25,000 households conducted in January 1956 by the Bureau of the Census, and are based on a listing of all work performed by each member of the household during 1955. All persons who reported holding 2 or more jobs (not simultaneously) in 1955 were counted as job changers. Some of these job changes were voluntary, such as quits, and others were involuntary, such as layoffs.

Table 1. Rate of job changing in the United States during 1955, by age and sex

Age and sex	Total number with work experience (thousands)	Workers who made 1 or more job changes	
		Number (thousands)	Percent of total
Total	75,353	8,366	11.1
Male, 14 and over	47,624	5,940	12.5
14-17	2,541	328	12.9
18-24	5,127	1,420	27.7
25-54	30,524	3,730	12.2
55 and over	9,432	462	4.9
Female, 14 and over	27,729	2,426	8.7
14-17	1,663	179	10.8
18-24	4,875	815	16.7
25-54	16,932	1,278	7.5
55 and over	4,259	154	3.6

Source: U. S. Bureau of the Census.

more likely to look for better jobs when business is expanding. On the other hand, older workers with family responsibilities are usually more settled in their work career, and their family obligations and social status are more established; they are therefore less likely to make voluntary changes in their jobs. In addition, they are not laid off as quickly as younger persons because they have greater seniority and usually have more highly developed skills.

Although women leave and reenter the labor force much more frequently than men in the course of their working life, those who are working in any particular year are found to change jobs less frequently than men. This finding is partly a result of the methods used to compile these statistics--if a person leaves the labor force in a given year and returns to work in a later year, he (or she) is not counted as a job changer in either year. Such moves are much more characteristic of women than of men, since many women leave jobs to marry and have children, and return to work after the children are all in school.

How Type of Work Influences Job Changing

The type of work a young person chooses will greatly affect his chances of being involved in job changing. For example, hired workers on farms and in the construction industry frequently have more than one employer during the year, since their jobs often end with completion of a particular project, such as the erection of a building or the harvesting of a crop. On the other hand, workers in government agencies and in transportation and public utilities, where the work is continuous, change jobs much less often.

Managers, officials, and proprietors changed jobs less frequently than any of the other major occupation groups in 1955. (See table 2.) Farm operators also showed little tendency to change jobs, although many of them held jobs off the farm at the same time as they were doing farm work. Laborers showed the unstable nature of their occupation by their rate of job changing--

Table 2. Rate of job changing among major occupational groups during 1955, by sex

Occupational group	Both Sexes		Male		Female	
	Number who worked in 1955[1] (thousands)	Job changers[2] (percent)	Number who worked in 1955[1] (thousands)	Job changers[2] (percent)	Number who worked in 1955[1] (thousands)	Job changers[2] (percent)
Total	75,353	11	47,624	13	27,729	9
Professional, technical, and kindred workers	6,765	7	3,989	8	2,776	7
Farmers and farm managers	3,959	5	3,768	4	191	([3])
Managers, officials, and proprietors (except farm)	6,696	6	5,601	6	1,095	([3])
Clerical and kindred workers	10,074	10	2,954	10	7,120	10
Sales workers	5,284	12	2,718	13	2,566	11
Craftsmen, foremen, and kindred workers	9,131	12	8,881	12	250	([3])
Operatives and kindred workers	14,666	13	10,173	15	4,493	9
Private household workers	2,887	6	59	([3])	2,828	6
Service workers (except private household)	6,600	12	2,945	13	3,655	12
Farm laborers and foremen	5,109	13	2,480	19	2,629	7
Laborers (except farm and mine)	4,182	23	4,056	23	126	([3])

[1]Includes persons 14 years of age and over.
[2]Job changers include persons who worked at 2 or more jobs in 1955 but held no 2 jobs at the same time.
[3]Percent not shown where group reporting 2 or more jobs in 1955 (including dual jobholders and job changers) was less than 200,000.

Source: U. S. Bureau of the Census

23 percent of all nonfarm laborers and 13 percent of farm laborers changed jobs during 1955. As noted previously, the rate of job changing among all workers in 1955 was about 11 percent.

Among domestic service workers who work a day or two for each of several employers during the week, the actual rate of job changing is of course very high. The low rates for this group (shown in table 2) are mainly due to the statistical definitions used; domestics were considered as holding one job even if they worked in several different private households.

In changing jobs, a worker may simply change employers while continuing to perform the same kind of work in the same general industry. A carpenter, for example, may shift from one contractor to another when a job is finished or when he gets a better offer from another employer. More than a fourth of all job shifting in 1955 involved this type of move. A slightly smaller proportion of the job changers continued in the same occupation but changed industries--as when a carpenter shifted from a construction project to work in a wood products factory. A few workers stayed in the same industry but changed their occupation--as when a carpenter employed by a construction firm moved up to the "front office" to do estimating or accounting work.

Almost half of the job changing involved shifting into both a different occupation and a different industry. Job changers who were initially laborers, sales, or service workers showed the greatest tendency to change occupations. Between one-half and two-thirds of the job shifting of these workers involved a major change in the type of work performed. On the other hand, between one-half and two-thirds of the job shifts of professional workers, craftsmen, operatives, and clerical workers were within the same occupational field.

Reasons for Changing Jobs

The reason a worker gives for changing jobs indicates to some extent whether the change affected him favorably or unfavorably. The desire for improvement was reported most often by workers surveyed as the reason for changing jobs; almost 40 percent of the job changes were attributed to this cause. Job improvement may involve not only more pay and better working conditions, but also less tangible factors such as chance for advancement, security, a liking for the kind of work, and agreeable supervisors and fellow workers. Economic factors, primarily layoffs, were next in importance, being cited as the reason for about one-quarter of the changes. The remaining job changes were made for a variety of reasons, such as illness and ending of a temporary job.

The reasons for job changing often vary with the age, sex, and occupation of the worker. Quitting one job in order to obtain a better one was more common among workers under 45 than among workers past that age. The worker over age 45 tends to feel that his job chances are more limited; when he does change his job, it is likely to be because he has been laid off. Many teen-age workers changed jobs because a temporary job ended, or because they left a job to go back to school and later found another one when school pressures diminished.

Economic reasons for job changing, such as layoffs and business failures, were considerably more important among "blue-collar" workers--laborers, operatives, and craftsmen--than among "white-collar" workers in professional, sales, and clerical occupations. This is in part due to the fact that blue-collar workers are heavily concentrated in construction and other industries especially subject to ups and downs in employment.

Voluntary Quitting

About 16 of every 1,000 workers on manufacturing payrolls voluntarily quit their jobs each month in 1955.[2]

[2] The information in this section is drawn from monthly figures on labor turnover in manufacturing industries issued by the Bureau of Labor Statistics. These figures are based on payroll and personnel records. Not all of the turnover shown in the Bureau's figures represents job change. Some of those going off the payroll were withdrawing from the labor force.

The number of workers separated for other reasons, such as layoff, discharge, or leaving to enter military service, averaged 17 per 1,000 employed each month.

For a worker to give up a job may entail a considerable risk and readjustment, and the decision is seldom made lightly. For this reason, the voluntary quit rate is generally considered a good indicator of the availability of job opportunities. In addition, it reflects changes in the labor market which occur regularly during different periods of the year. Over the long run, it also reflects changes in worker and employer attitudes towards "steadiness" in employment, as well as such institutional developments as pensions and seniority systems which affect the worker's job mobility.

These influences show up in the quit rate in several ways. First, a distinct seasonal pattern is apparent. For example, the quit rate usually rises sharply in September when students return to school, and declines to a low point in November and December when workers are less inclined to quit their jobs than to take on extra work in order to increase their Christmas income.

Second, the voluntary quit rate tends to decline when layoffs and unemployment are rising, and tends to rise when layoffs and unemployment are falling. When business is bad and there are few attractive job openings, the worker tends to hold on to his job; if he does leave his job it will probably be as a result of a layoff.

Aside from the short-term patterns discussed above, the quit rate has shown a long-term downtrend. This trend was partially obscured by the depression of the thirties and by the labor scarcities and labor market dislocations of World War II. If we discount these unusual conditions, we find that the quit rate has in general drifted downwards. Since World War II, this rate has declined close to the low depression levels of the thirties despite generally high employment levels.

This tendency for the quit rate to decline has been influenced by a number of factors, among which are union protection of job rights based on seniority and the establishment of pension, health, and welfare plans. These give the worker a bigger stake in his present job and less incentive to take another one which would require him to give up the retention rights and other benefits he may have built up. Other factors are unemployment compensation and supplementary unemployment benefit systems, which generally limit benefits to workers who are laid off and bar benefits to those who quit, the growth of large corporations in which a great deal of job shifting is possible within the company, and the declining proportion of workers in the least skilled occupations where quitting is most common. Changes in social attitudes towards job changing, developments in society and industry tending to reduce the need for casual workers, and shifts in the age and sex distribution of the factory work force are other possible influences contributing to the declining quit rate.

Notwithstanding this gradual downward drift in quit rates, the amount of job changing is still considerable, particularly among young people, and it is still important to the individual. Job changing is one of the means by which a worker can find his place in the economy and advance himself.

The initial choice of a job and a career is a very important decision. However, a worker may benefit from reexamining his job situation as he gains experience--to insure that no error was made in the initial choice, to see if a change in industrial conditions has affected the job outlook, and to see if he has acquired new skills which qualify him for a better job. Job changing may enable the worker to correct an initial mistake in judgment, to take advantage of changed conditions, or to profit from development of his talents.

MATHEMATICS IN THE PUBLIC HIGH SCHOOLS

Mathematics and the methods of thought that mathematical training develops are becoming increasingly important in this technical age. Rapid advances in technology have created many new occupations which require varying amounts and kinds of mathematical training, and the introduction of more complex machinery and techniques has increased the amount of mathematics required in established fields of work.

Students need a good foundation in high school mathematics as preparation for college or for direct entry into many occupations. Success in college work is largely dependent on adequate high school training in the fundamental disciplines, and many jobs that require no college training do demand the passing of aptitude tests requiring skills in using figures. Furthermore, in most of the skilled trades, an understanding of shop mathematics is essential to the successful completion of apprenticeship training.

Enrollments and Offerings in Mathematics

Since the turn of the century, the number of pupils in the last four grades of public high school enrolled in basic mathematics courses, such as algebra, geometry, and trigonometry, has not increased enough to keep pace with the growing demand for people with training in mathematics. Since 1954, however, with greater attention focused on the need for technical personel, mathematics courses have received greater emphasis, with the result that over the last 3 school years, both the proportion and the number of high school students studying most types of math have increased. (See table.) In spite of these gains, further efforts must be made to increase the percentage of high

Comparison of enrollments, by type of school, in certain mathematics courses, expressed as the percentage of pupils in grade where course is usually offered: Fall 1954 and fall 1956

Year and course	Grade	Percentage of pupils enrolled					
		All high schools	Regular 4-year high school	Junior high school	Senior high school	Junior-senior high school	Undivided high school
General mathematics	9						
1954	.....	44.5	46.2	42.0	.....	41.3	52.3
1956	.....	43.1	44.6	41.1	.....	41.9	50.1
Elementary algebra	9						
1954	.....	64.5	65.9	43.8	.....	66.4	69.1
1956	.....	67.0	69.5	51.7	.....	69.2	68.0
Plane geometry	10						
1954	.....	37.4	38.4	.....	33.6	40.0	34.1
1956	.....	41.6	40.3	.....	43.8	41.7	37.8
Intermediate algebra	11						
1954	.....	28.5	27.6	.....	23.8	29.6	36.4
1956	.....	32.2	29.6	.....	34.5	31.4	35.5
Plane trigonometry	12						
1954	.....	7.4	6.7	.....	7.7	8.9	4.7
1956	.....	9.2	7.9	.....	9.4	10.9	8.2
Solid geometry	12						
1954	.....	6.5	6.5	.....	6.0	7.5	4.4
1956	.....	7.6	7.1	.....	7.6	8.4	6.8

Source: U. S. Department of Health, Education, and Welfare, Office of Education.

school students taking these courses if the Nation's growing needs for people with mathematical training are to be met.

The survey of offerings and enrollments in science and mathematics in public high schools for the 1956-57 school year published by the U.S. Office of Education gives an up-to-date picture of enrollments in high school mathematics courses.[1] This study shows that in the fall of 1956, of the more than 4.5 million young people age 16 and 17 in the United States, nearly 2.8 were enrolled in the 11th and 12th grades of public high schools and only 659,000 of these were studying mathematics. These mathematics courses are essential if a student plans to study college mathematics, and they also cover most of the mathematics needed in many skilled occupations. However, only about 1 out of 3 high school students takes intermediate algebra and only 1 out of 8 studies trigonometry or solid geometry. Even if they wanted to do so, some pupils could not study these subjects since more than 100,000 seniors attend public high schools where no advanced mathematics of any kind is offered. In addition, more than one-fourth of all seniors attend public high schools offering neither solid geometry nor trigonometry.

Another finding of the study is important in the light of the increasing participation of women in the labor force. It was found that as students go on to advanced mathematics courses, which are usually elective, the ratio of boys to girls increases. For example, four times as many boys as girls were enrolled in solid geometry in the 1956-57 school year. This suggests that a greater effort might be made to encourage interest in mathematics among high school girls.

Supply of Mathematics Teachers

The number of persons completing requirements for mathematics teaching in any one year has fluctuated widely during the postwar decade. A survey of the total number of bachelor's degree graduates prepared for secondary school teaching in mathematics shows 2,781 graduates in 1948, 4,618 in 1950 (the year when most veterans graduated under the GI bill), 2,223 in 1954, and 2,892 in 1957.

Many more high school mathematics teachers are needed. The fact that this occupation is on the U.S. Department of Labor's list of Critical Occupations to be considered for deferment from active military service suggests the seriousness of the shortage. Thus, the problem of providing enough new workers with adequate training in mathematics is complicated by a shortage of those qualified to teach the subject.

Need for Increased Emphasis on Mathematics Courses

More pupils might be encouraged to take mathematics courses if guidance personnel and educators would give greater emphasis to these subjects. In 1956, only 8 State departments of education had set up programs especially designed to emphasize science and mathematics. In contrast, 48 States had special programs to promote enrollment in various other subjects. Fourteen States did not require a single course in mathematics for high school graduation.

An adequate supply of people trained in mathematics can be obtained only by getting young people interested in mathematics and encouraging them to enroll in continuing courses in the subject. Education in mathematics cannot wait for the student's college years. It must begin in high school. The key to the Nation's future supply of the mathematically trained people needed for our work force lies in high school offerings and enrollments in these courses.

[1] These statistics and other factual information are from Offerings and Enrollments in Science and Mathematics in Public High Schools, Pamphlet No. 120 U.S. Department of Health, Education, and Welfare, Office of Education, 1957. Available from the Superintendent of Documents, Government Printing Office, Washington 25, D.C., price 25 cents.

HOW MUCH SCHOOLING DO YOUNG WORKERS NEED?

by Cora E. Taylor

Counselors and teachers are often faced with questions regarding the amount of schooling young people need as preparation for employment. They may be aided in answering such questions by new information from recent Bureau of the Census reports,[1] with respect to the general rise in the educational level of the country's work force, the amount of schooling completed by most workers in different occupational groups, and the average earnings of workers at various levels of education.

The educational level of the working population is continuing its long-term upward trend at an accelerated rate. Nearly half the workers now in the labor force have completed 12 or more years of school. In other words, a high school education or its equivalent now represents the average (median) educational attainment of American workers. This is a recent development--just prior to World War II only one-third of the workers had completed as much as 12 years of schooling and in 1948 the corresponding proportion was about 40 percent.

As older workers retire from the labor market, they are replaced by young people who, as a group, have more schooling than their parents or grandparents. The men and women 65 years old and over who were still working in early 1957 had completed only 8 years of school, on the average, compared with an average of more than 12 years for workers aged 18 to 34. A majority of the young people now entering the labor market have had some training beyond high school, either academic or vocational.

An important factor in the rising educational level of the Nation's workers has been the growing proportion of people with college training. By 1957, about 18 percent of the workers 18 to 64 years old had completed at least 1 year of college and 9 percent were college graduates. In 1940, the comparable figures were only 13 percent and 6 percent.

Relation of Education to Occupational Choice

The amount of schooling a young person needs to equip him for employment of course depends primarily on the type of work he plans to enter. Nowadays, most professional and technical positions are virtually closed to persons without post-high-school training, and an increasing number of such positions are reserved for those with 4 or more years of college. Other types of occupations are also demanding a share of college graduates. In 1957, 16 percent of all workers with 4 or more years of college were employed as proprietors, managers, or officials, and nearly 14 percent were engaged in clerical or sales work. Women graduates, to a much greater extent than men, were concentrated in the professions, mainly in teaching and nursing, and in clerical and sales occupations. About 20 percent of the men college graduates were employed as managers and proprietors and 12 percent as craftsmen and foremen (chart 1).

Women who complete high school but do not go on to college are most likely to enter clerical or sales work. These areas of work--by far the largest for women--provided employment for nearly 2 out of every 3 women high school graduates in 1957. The highest proportion of men with this level of education were employed as skilled craftsmen or foremen, but nearly as many were in each of the following occupational groups: Clerical and sales workers, operatives and kindred workers, and managers and proprietors.

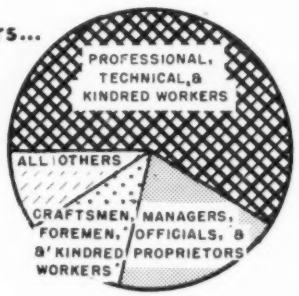
[1] The statistical data used in this article are primarily from Bureau of the Census Current Population Reports, Series P-20, No. 77, December 1957; and Series P-50, No. 78, November 1957. For sale by the Bureau of the Census, price 10 cents.

Chart 1.

Educational attainment affects occupational choice...

(Occupational distribution of employed persons aged 18 and over, March 1957)

Most college graduates are professional workers...

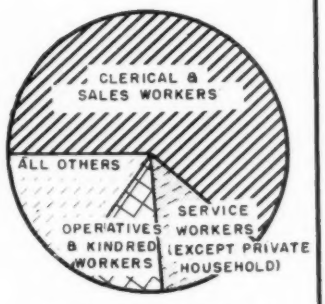

PROFESSIONAL, TECHNICAL, & KINDRED WORKERS
ALL OTHERS
CRAFTSMEN, FOREMEN, & KINDRED WORKERS
MANAGERS, OFFICIALS, & PROPRIETORS

Men college graduates

Women college graduates

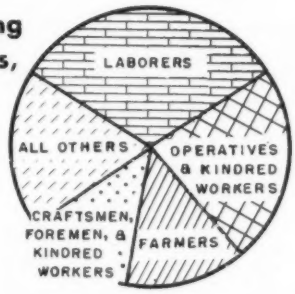
Most high school graduates are clerical, sales, or skilled workers...

Men high school graduates

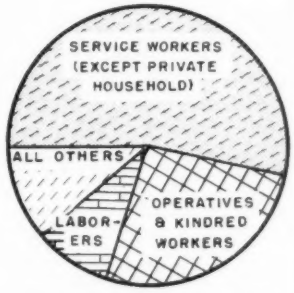


Women high school graduates

Most people with less than 5 years of schooling are laborers, operatives, or service workers...



Men with less than 5 years of schooling



Women with less than 5 years of schooling

Source: U.S. Bureau of the Census.

The jobs open to people with the least schooling (less than 5 years) are those which require the least skill--laborer, operative, and service jobs. In 1957, a third of the men with less than 5 years of schooling were employed as laborers and nearly a fourth as operatives or kindred workers. More than half the women at this educational level were employed as waitresses, cooks, charwomen, or in other types of service work (other than in private households).

There is, of course, a wide range of jobs within each of the broad occupational groups mentioned above and the educational requirements for each may vary greatly. For example, many service jobs are open to people with little formal education; however, other service occupations--such as FBI agent, policeman, or fireman--are filled on the basis of competitive examinations for which a high school or college education may be required. Similarly, some skilled occupations can be learned on the job without special classroom instruction, whereas others require attendance at special trade or technical schools.[2]

Educational Level of Men and Women Workers

Women workers have more schooling, on the average, than men. Since World War II, educational gains have been sharper among men than women, owing largely to the widespread opportunities for college training provided veterans by the GI bill of rights. In spite of these gains, men have an average educational attainment of only 11.1 years as compared with 12.1 years for women.

Related to the higher average educational level of women workers is the fact that women with a high school or college education are more likely to work than those with less schooling (chart 2). In 1957, more than 55 percent of the women college graduates were employed, in contrast with 41 percent of the women high school graduates and about 32 percent of those with only 8 years of schooling. On the other hand, the proportion of men employed was as great among those with only a high school education as among those with 4 years of college; it was also about the same for those with 8 years of schooling as for those with 1 to 3 years of college. Men with limited schooling are likely to be somewhat less handicapped in looking for jobs than are women with the same amount of education--since far more men than women are employed in blue-collar jobs where formal education is less important than such factors as mechanical aptitude, strength, and experience. In the white-collar occupations which employ most women, at least a high school diploma is usually required.

Relation of Education to Rate of Unemployment

The rate of unemployment in any group of workers obviously depends on many factors--for example, the occupations and industries in which the workers are employed, their age and other personal characteristics, and the general level of business activity. The amount of schooling workers have had is another factor which appears to influence the unemployment rate. In March 1957, the proportion of workers unemployed was 8 percent among those with fewer than 5 years of schooling, 3 percent for high school graduates, and less than 1 percent for college graduates. Viewed in another way, the unemployed had completed only $9\frac{1}{2}$ school years, on the average, and the employed had completed nearly 12 years. Other things being equal, better educated people may have an advantage in competing for jobs, and are also more likely to be employed in relatively stable types of work--for example, in professional or managerial occupations.

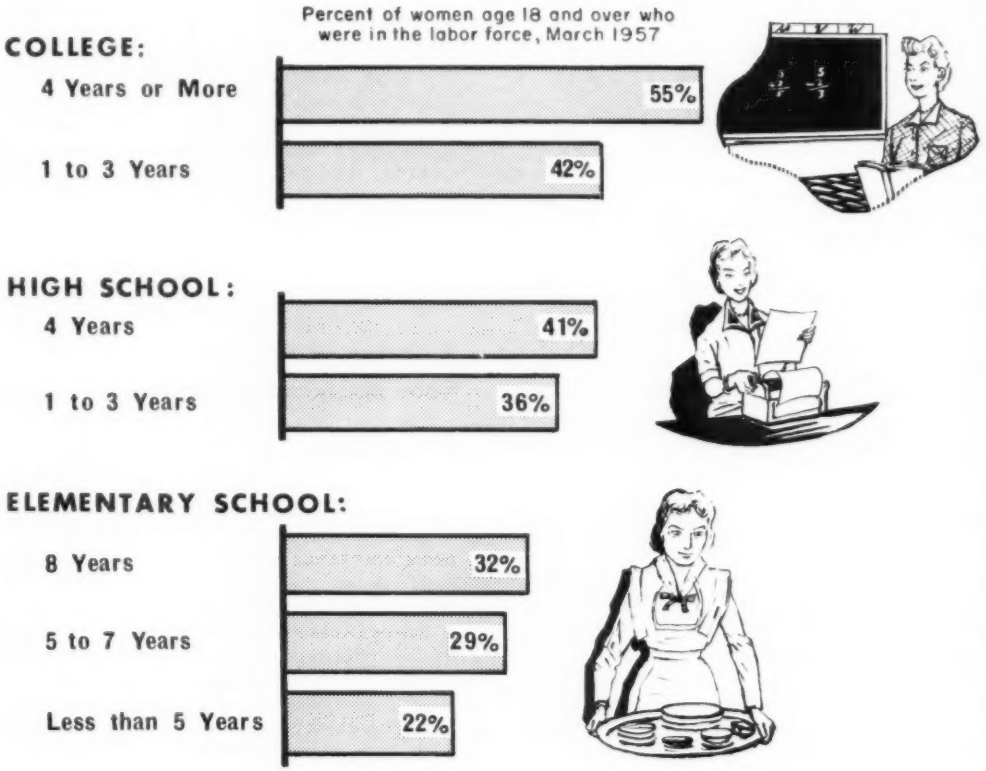
Relation of Education to Income

How much is schooling worth? Obviously, the value of education cannot be measured in dollars and cents alone, but there is a definite relationship between the educational level and the income of workers. As indicated in chart

[2] Detailed information on educational requirements for entrance into each of several hundred specific occupations is included in the Occupational Outlook Handbook,

Chart 2.

Proportion of women working increases with level of schooling...



Source: U. S. Bureau of the Census

3, workers with the most schooling are also likely to have the highest income. More than two-thirds of the men college graduates from 35 to 54 years of age who were employed full time in civilian jobs had incomes of $6,000 or more in 1956. By comparison, about one-third of those who had completed high school only, and less than one-seventh of those who had finished elementary school only received that much income. On the other hand, incomes of less than $4,000 were received by nearly half the men with no formal education beyond elementary school, compared with 1 out of 4 high school graduates and only 1 out of 8 college graduates.

Even within the same broad occupational group, the income received varies with the amount of schooling. For example, in 1956, only 10 percent of the clerks and sales workers with less than 4 years of high school had incomes of $6,000 and over, compared with 37 percent of those who had completed high school. The better educated people operating their own businesses (self-employed) also had the highest incomes. More than half

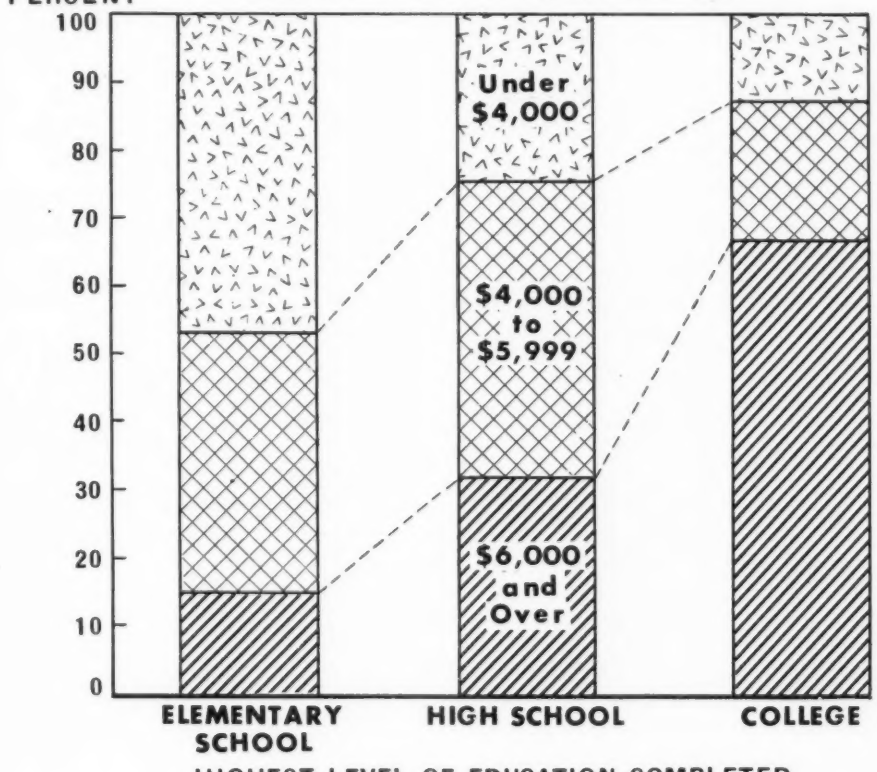
of the self-employed group who had completed high school had incomes of $6,000 or more, but only one-fifth of those with less schooling had that much income--no doubt reflecting, in large measure, differences in the kinds of businesses entered by people with varying scholastic backgrounds.

One of the most important values of education is the broadening of opportunities for promotion. When young people start to work, their level of education may make little difference in the income they receive, but those with the most education are likely to pull ahead of the others in the long run. To illustrate, in 1956 the difference in average income between workers in the 18-to-24 age group and those in the 45-to-54 bracket was more than 250 percent in the case of college graduates, but only 100 percent in that of high school graduates. The incomes of women followed much the same general pattern, although in all cases women had lower average incomes than men at the same age and educational levels.

Chart 3.

More schooling brings higher average income . . .

(Percent distribution of men 35-54 years of age who were full-time year-round workers, by 1956 income)



Source: U.S. Bureau of the Census

The amount of schooling a person has is not, of course, the only factor that makes for higher income. Persons who succeed in obtaining considerable schooling tend to be above the general average in level of ability. In addition, some may have social and economic backgrounds that are advantageous in securing employment and promotions. Differences in income undoubtedly reflect a complex of circumstances, but statistical evidence strongly suggests that schooling is a major factor affecting the earnings of workers.

SALARIES OF BEGINNING ENGINEERS INCREASE IN 1957

Starting salaries of engineers continued to increase in 1957 but at a slower rate than in the past several years. Monthly salaries of inexperienced engineers with bachelor's degrees average $454 in 1957, about 9 percent higher than in 1956, according to data from an annual survey of companies employing college graduates conducted by Frank S. Endicott of Northwestern University.[1]

The upward trend in starting salaries for new engineering graduates with bachelor's degrees and no experience is likely to continue in 1958, although at a slower rate than in 1957. Employers replying to the Endicott Survey indicated that they expect to pay engineering graduates with bachelor's degrees starting salaries averaging about $468 in 1958, about 3 percent more than in 1957. As in previous years, starting salaries for engineering graduates with advanced degrees will be higher than those offered bachelor's degree graduates.

That beginning salaries for engineers were considerably higher in some industries than in others in 1957 is shown by information from another survey made by the Engineers Joint Council.[2] According to this survey, starting salaries ranged from a low of $325 in utilities and sanitary services to a high of $550 in electrical machinery and transportation equipment. (See table below.) The average for all industries shown in this study was similar to that indicated by the Endicott survey.

Starting salary rates for inexperienced engineering graduates in 1957

Industry	Average monthly salary		
	Weighted average	Highest	Lowest
Total industry	$448	$550	$325
Chemicals	434	465	425
Petroleum (extraction and production)	461	475	420
Primary and fabricated metals	452	475	350
Ordnance	435	435	435
Electrical machinery	449	550	350
Machinery (except electrical)	443	525	400
Transportation equipment	473	550	415
Professional and scientific instruments	444	500	440
Mining	444	500	430
Construction	438	500	380
Rail, water, and air transportation	445	465	425
Telecommunications	432	492	430
Utilities and sanitary services	428	477	325
Miscellaneous services:			
Consulting	435	480	390
Research and development	456	500	400
Government	396	481	339
Federal Government	376	433	356
State and local government	434	481	339

Source: Engineers Joint Council.

[1] Frank S. Endicott, The Endicott Report in the Journal of College Placement, Vol. XVIII, No. 3, March 1958, pages 48-63.

[2] Demand for Engineers in 1957, Report No. 108, The Engineering Manpower Commission of the Engineers Joint Council, 1957.

FRINGE BENEFITS IN 17 LABOR MARKETS*

Supplementary wage payments, or "fringe benefits," are becoming a very important part of the real earnings of American workers. Benefits such as life insurance, paid vacations, sick leave, paid holidays, and retirement pensions are now the rule rather than the exception in most parts of the Nation, as is shown by the result of the 1956-57 community wage surveys conducted by the U. S. Department of Labor's Bureau of Labor Statistics.

These surveys, made in 17 major cities in all regions of the country, show that the percentage of workers receiving the various fringe benefits varies considerably both between cities and between regions. Within a given city, the type of fringe benefits a worker enjoys depends to some extent on the industry in which he is employed. There is a wide range in the dollars-and-cents value to the worker of the various benefits listed, depending not only on the industry and employer, but also on the job he holds, and the seniority he has accumulated. Generally, somewhat larger percentages of officeworkers than of plant workers receive fringe benefits.

Paid Vacations

Nearly every worker covered by the survey was eligible for at least 1 week's paid vacation after a year on the job. Two weeks of paid vacation after 5 years of work was almost as common, except for about 10 percent of the plant workers in the South. Paid vacations of 3 and 4 weeks, or more were also common after longer periods of service, but these provisions were not as widespread as the shorter vacations.

Paid Holidays

Six paid holidays was the most common provision for workers in most of the areas surveyed. Sizable groups of workers also received 5, 7, and 8 paid holidays, and many enjoyed 9 or more. However, in a few areas, 10 percent or more of the plant workers received no paid holidays. Holiday provisions were more consistent within particular cities than were other fringe benefits; local customs are important influences in determining which holidays are observed.

Health and Insurance Plans

Life insurance was available to 90 percent or more of the officeworkers in each area except Boston and Portland, and to 84 percent or more of the plant workers, except in Memphis and Portland. Hospitalization and surgical insurance were each available to from 70 to 90 percent of both office and plant workers in almost as many areas. Protection against loss of income by illness was even more common in half the areas. Paid sick leave was the usual provision for officeworkers, and sickness and accident insurance for plant workers.

Retirement Plans

Retirement pension plans providing regular payments for the remainder of the employee's life were somewhat more prevalent for officeworkers than for plant workers. The proportion of officeworkers covered by pension plans ranged from 60 to 69 percent (in 3 southern labor markets) to from 80 to 85 percent in Atlanta, Pittsburgh, Buffalo, Philadelphia, and Los Angeles-Long Beach. The proportion of plant workers covered by pension plans ranged more widely, from about 40 percent in Memphis and from 51 to 56 percent in Boston, Dallas, and Portland up to 74 and 75 percent in Buffalo and New York City and to 82 percent in Pittsburgh.

Some Implications

The most important fact about fringe benefits is that they constitute added

*The substantive material in this article is drawn from Supplementary Wage Provisions in 17 Labor Markets, 1956-57, (in Monthly Labor Review, November 1957.)

Percent of workers employed in establishments having formal provisions for selected supplementary wage benefits in 17 major labor markets, August 1956-April 1957

Area	Paid vacations[1]							Paid holidays (full days)					
	2 weeks or more		3 weeks or more			4 weeks or more		Total	1 to 5	6	7	8	9 or more
	After 1 year	After 5 years	After 5 years	After 10 years	After 15 years	After 20 years	After 25 years						
	Office workers												
Northeast:													
Boston	96	99	26	42	85	10	29	99	(4)	2	10	3	85
Buffalo	81	99	6	37	88	7	26	99	---	39	37	5	19
New York City	92	99	18	56	88	17	49	99	---	2	14	11	74
Philadelphia	77	99	7	33	83	4	32	100	(4)	25	21	21	33
Pittsburgh	78	99	(4)	13	88	3	15	99	(4)	37	45	10	8
South:													
Atlanta	78	98	(4)	19	64	5	26	99	36	35	19	8	3
Birmingham	62	94	(4)	8	55	(4)	7	99	26	18	46	(4)	8
Dallas	67	97	3	9	51	(4)	16	99	38	38	20	4	---
Memphis[5]	65	99	4	16	46	3	15	100	58	17	20	5	---
North Central:													
Chicago	80	99	6	37	85	11	32	99	(4)	50	28	8	14
Cleveland	84	99	(4)	21	89	3	14	99	(4)	76	19	2	1
Kansas City	64	99	6	23	72	7	29	99	2	50	27	17	3
Minneapolis-St. Paul[5]	69	99	5	32	84	6	31	100	---	66	24	6	4
West:													
Los Angeles-Long Beach	80	100	8	24	80	7	18	100	(4)	48	29	17	6
Portland	68	100	3	24	69	4	21	99	(4)	45	39	15	1
San Francisco-Oakland	82	100	8	27	81	5	24	100	(4)	2	49	34	15
Seattle	83	100	(4)	9	42	5	22	100	---	1	56	40	3
	Plant workers												
Northeast:													
Boston	40	98	13	26	74	9	16	95	5	11	27	12	40
Buffalo	18	99	7	28	86	7	22	97	1	47	40	6	3
New York City	44	95	15	35	63	6	14	97	5	16	31	14	33
Philadelphia	24	95	5	34	71	3	18	99	3	36	34	20	6
Pittsburgh	6	98	(4)	8	92	5	11	97	1	20	67	7	2
South:													
Atlanta	32	83	3	16	42	7	12	85	39	35	9	(4)	1
Birmingham	6	91	(4)	4	73	(4)	(4)	94	17	19	56	2	---
Dallas	18	88	(4)	3	38	(4)	8	89	42	23	22	1	---
Memphis[5]	12	84	(4)	6	39	(4)	6	85	44	23	16	2	---
North Central:													
Chicago	18	98	7	30	82	10	24	98	6	55	28	7	2
Cleveland	11	99	(4)	15	87	4	11	97	4	76	17	(4)	---
Kansas City	19	97	4	12	65	(4)	20	98	6	57	24	8	2
Minneapolis-St. Paul[5]	18	99	6	27	72	3	23	98	2	73	18	6	---
West:													
Los Angeles-Long Beach	38	98	12	25	76	5	11	95	3	51	27	14	(4)
Portland	13	100	(4)	18	50	3	16	89	2	51	32	4	---
San Francisco-Oakland	26	100	11	31	87	3	17	95	7	7	52	29	(4)
Seattle	43	97	(4)	39	71	(4)	9	93	6	4	51	32	---

See footnotes at end of table.

Percent of workers employed in establishments having formal provisions for selected supplementary wage benefits in 17 major labor markets, August 1956-April 1957 (continued)

Area	Insurance							
	Life	Accidental death and dismemberment	Hospitalization	Surgical	Medical	Catastrophe	Sickness pay[2]	Retirement pension[3]
	Office workers							
Northeast:								
Boston	89	46	78	76	39	16	74	78
Buffalo	93	39	87	82	53	11	91	81
New York City	93	41	77	74	53	30	92	78
Philadelphia	94	30	66	57	35	15	87	81
Pittsburgh	95	42	79	78	45	16	94	83
South:								
Atlanta	98	55	84	82	45	37	71	85
Birmingham	93	29	61	61	32	6	68	63
Dallas	92	47	78	75	55	19	68	69
Memphis[5]	91	50	85	85	44	10	62	61
North Central:								
Chicago	95	41	80	80	53	24	80	75
Cleveland	93	45	74	71	33	14	72	74
Kansas City	91	56	75	75	58	20	79	74
Mineapolis-St. Paul[5]	91	45	76	75	60	10	70	74
West:								
Los Angeles-Long Beach	97	68	89	89	74	43	80	80
Portland	88	44	83	82	74	18	70	74
San Francisco-Oakland	94	40	80	80	68	27	72	72
Seattle	98	73	55	55	48	15	93	72
	Plant workers							
Northeast:								
Boston	84	52	74	70	33	3	91	56
Buffalo	91	38	89	88	52	4	80	75
New York City	92	42	87	85	58	6	85	74
Philadelphia	93	43	80	75	46	5	88	59
Pittsburgh	99	43	93	93	32	8	95	82
South:								
Atlanta	94	56	82	81	33	17	72	59
Birmingham	89	23	76	72	22	([4])	80	61
Dallas	86	49	79	77	46	13	58	54
Memphis[5]	72	41	66	64	32	5	60	42
North Central:								
Chicago	92	47	88	87	59	10	89	65
Cleveland	95	52	76	79	40	5	85	67
Kansas City	84	50	72	72	53	13	77	59
Minneapolis-St. Paul[5]	88	48	78	76	53	4	88	58
West:								
Los Angeles-Long Beach	93	70	92	92	79	28	67	62
Portland	71	47	79	79	72	6	74	51
San Francisco-Oakland	94	49	84	84	80	19	55	63
Seattle	93	52	90	90	85	6	91	63

[1]A week's pay for a year's service applied to 99 percent of the office workers and 98 percent of the plant workers in virtually every area.

[2]Unduplicated total of workers receiving paid sick leave or sickness and accident insurance or both.

[3]Includes retirement-type profit sharing plans that provide for regular payment to retirees for the remainder of their lives.

[4]Less than 0.5 percent.

[5]Data relate to winter 1955-56.

income to the workers in firms that offer these plans. The cash value of these supplementary payments may be large, and, in many cases, difficult to measure exactly. For example, how much is paid sick leave worth? Obviously, it is less valuable to a young, healthy worker than to an older person. Such a plan may also give a worker a certain freedom from financial worries that cannot be assigned a precise dollar value.

Pension plans, in addition to providing potential cash income to the worker after he retires, also tend to make firmer his attachment to the particular firm. If a worker, especially an older one, cannot withdraw the money he has in a retirement fund when he leaves the firm, he may be reluctant to change jobs even if he is offered more desirable work in some other company. In this way, pension plans and other benefits, such as paid vacations, dependent on length of service make seniority more valuable and tend to discourage job changes.[1] These benefits are making it increasingly important for the worker to make a wise career choice relatively early, since later changes will be more costly.

These facts about the fringe benefits that are "part and parcel" of modern industrial life should be taken into consideration by the young person entering the labor market for the first time. Such benefits have only as much value as the individual concerned attaches to them. Young people should be encouraged to weigh the personal value of the particular fringe benefits that are included with each of the alternatives with which they are confronted in choosing their field of work.

[1] See article on Job Changing (p. 19).

FEDERAL LABOR LAWS AND AGENCIES

A Layman's Guide to Federal Legislation Providing Safeguards for Workers

This publication brings together under one cover a quick reference to important Federal labor laws and regulations providing safeguards for privately employed persons. It also shows the Federal agencies which furnish information or general services in the field of working conditions and labor relations. It does not include laws that are designed primarily for public safety although these may also protect workers as, for example, the Federal Safety Appliance Act for railroads.

The bulletin (LSB No. 123 Revised) was brought together by the State Services Division of the Bureau of Labor Standards. It is available from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., price 40 cents.

UNION WAGE SCALES OF BUILDING TRADES WORKERS RISE

Union wage scales in the building trades rose to an average of $3.23 an hour as of January 1958, according to the U.S. Department of Labor's Bureau of Labor Statistics quarterly survey of pay scales in 100 cities. This represented an increase of 15 cents, or nearly 5 percent, over the January 1957 figure, about the same gain as occurred the year before.

Of the 6 major skilled trades, bricklayers had the lowest pay scale increases during 1957 (2.6 percent) and plumbers the highest (5.6 percent). The seventh trade, building laborers, had a still larger increase—6.4 percent.

During the 2 years ending in January 1958, the increases amounted to 27 to 31 cents for 5 of the 6 skilled trades, ranging from 8 percent for bricklayers and plasterers to 10 percent for carpenters. Plumbers significantly outgained other skilled trades; their pay scales rose 35 cents, or nearly 11 percent. For building laborers, whose pay scales are roughly two-thirds as high as those of the skilled trades, the 2-year increase was 29 cents, or almost 15 percent.

Union hourly wage scales[1] for selected building trades in 100 cities, January 2, 1958

City	Bricklayers	Carpenters	Electricians	Painters	Plasterers	Plumbers	Building laborers
Albuquerque, N. Mex.	$3.775	$3.025	$3.325	$2.750	$3.250	$3.400	$1.975
Atlanta, Ga.	3.600	2.950	3.300	3.000	3.125	3.300	1.600
Baltimore, Md.	3.800	3.050	3.425	2.825	3.350	3.300	1.900
Birmingham, Ala.	3.700	2.850	3.300	3.000	3.050	3.320	1.650
Boise, Idaho	3.500	2.875	3.100	2.750	3.000	3.200	2.220
Boston, Mass.	3.650	3.250	3.550	3.000	3.650	[2] 3.300	2.450
Buffalo, N. Y.	3.690	3.585	3.750	3.200	3.715	3.425	2.610
Burlington, Vt.	3.650	2.750	2.375	1.750	3.500	2.400	2.000
Butte, Mont.	3.125	3.000	3.350	2.750	3.250	3.275	2.090
Charleston, S. C.	2.750	2.500	3.000	2.250	2.750	3.100	1.250
Charleston, W. Va.	3.650	3.175	3.400	2.750	3.250	3.350	2.250
Charlotte, N. C.	3.000	2.400	2.850	1.750	2.625	3.100	1.330
Chattanooga, Tenn.	3.750	2.725	3.300	2.675	3.200	3.400	1.800
Cheyenne, Wyo.	3.500	2.750	2.950	2.650	3.000	3.000	1.800
Chicago, Ill.	3.825	3.450	3.650	3.475	3.700	3.530	2.775
Cincinnati, Ohio	3.600	3.450	3.670	3.100	3.500	3.575	2.500
Cleveland, Ohio	3.715	3.740	3.765	3.415	3.740	3.640	3.000
Columbia, S. C.	2.500	2.000	2.850	2.125	2.500	3.000	[3]
Columbus, Ohio	3.650	3.200	3.410	2.900	3.320	3.450	2.300
Dallas, Tex.	3.775	3.100	3.250	3.000	3.563	3.250	1.625
Dayton, Ohio	3.645	3.275	3.515	3.120	3.325	3.550	2.305
Denver, Colo	3.750	3.200	3.400	2.975	3.375	3.400	2.100
Des Moines, Iowa	3.800	3.125	3.425	2.870	3.250	3.425	2.375
Detroit, Mich.	3.530	3.250	3.650	3.125	3.580	3.635	2.580
Duluth, Minn.	3.400	2.850	3.200	2.750	3.225	3.100	2.200
El Paso, Tex.	3.600	3.000	3.350	2.550	3.250	3.350	1.650
Erie, Pa.	3.750	3.330	3.375	2.880	3.400	3.400	2.450
Evansville, Ind.	3.550	3.000	3.300	2.850	3.350	3.325	2.125
Fargo, N. Dak.	3.400	2.500	2.800	2.400	3.250	2.800	1.800
Grand Rapids, Mich.	3.750	3.150	3.400	2.750	3.130	3.700	2.350
Hartford, Conn.	3.650	3.250	3.650	3.000	3.650	3.320	2.230
Houston, Tex.	3.750	3.075	3.525	3.000	3.500	3.275	1.850
Indianapolis, Ind.	3.800	3.350	3.550	3.200	3.450	3.500	2.300
Jackson, Miss.	3.250	2.650	3.000	2.375	2.750	3.000	1.350
Jacksonville, Fla.	3.350	2.850	3.450	2.525	2.950	3.350	1.200
Kansas City, Mo.	3.750	3.125	3.475	3.075	3.500	3.400	2.255
Knoxville, Tenn.	3.600	2.875	3.150	2.600	3.125	3.300	1.775
Lansing, Mich.	3.800	3.250	3.500	3.000	3.800	3.500	2.450

See footnotes at end of table.

Union hourly wage scale[1] for selected building trades in 100 cities, January 2, 1958 (continued)

City	Bricklayers	Carpenters	Electricians	Painters	Plasterers	Plumbers	Building laborers
Las Vegas, Nev.	4.000	$3.425	$3.800	$3.325	$3.950	$3.950	$2.650
Little Rock, Ark.	3.500	2.850	2.875	2.500	3.190	3.130	1.400
Los Angeles, Calif.	3.800	3.225	[4]3.750	3.260	3.937	3.700	2.500
Louisville, Ky.	3.750	3.300	3.450	3.050	3.400	3.450	2.250
Madison, Wis.	3.450	3.000	3.400	2.850	3.270	3.150	2.450
Manchester, N. H.	3.500	3.000	3.000	2.330	3.500	3.150	2.200
Memphis, Tenn.	3.750	2.800	3.300	2.720	3.250	3.245	1.525
Miami, Fla.	3.450	3.050	3.500	2.870	3.450	3.400	1.580
Milwaukee, Wis.	3.550	3.300	3.350	3.000	3.310	3.360	2.520
Minneapolis, Minn.	3.575	3.150	3.250	3.000	3.250	3.215	2.400
Mobile, Ala.	3.685	2.950	3.375	2.875	3.300	3.600	1.730
Montgomery, Ala.	3.250	2.450	2.850	2.500	2.500	3.100	1.200
Nashville, Tenn.	3.625	2.850	3.175	2.750	3.250	3.300	1.475
Newark, N. J.	4.250	4.000	4.250	3.600	4.250	4.000	3.200
New Haven, Conn.	3.500	3.250	3.500	3.100	3.500	3.350	2.450
New Orleans, La.	3.425	2.900	3.375	2.500	2.985	3.250	1.650
New York, N. Y.	4.150	4.000	3.650	3.290	4.150	4.100	3.250
Norfolk, Va.	3.500	2.600	3.200	2.600	3.125	3.150	1.450
Oakland, Calif.	3.750	3.175	3.785	3.200	3.540	3.875	2.505
Oklahoma City, Okla.	3.800	2.975	3.375	2.800	3.500	3.420	1.950
Omaha, Nebr.	3.575	3.050	3.500	2.700	3.400	3.300	2.100
Peoria, Ill.	3.750	3.360	3.500	3.075	3.600	3.550	2.675
Philadelphia, Pa.	3.870	3.535	4.075	3.025	3.900	4.000	2.250
Phoenix, Ariz.	3.875	3.190	3.450	2.900	3.570	3.550	2.270
Pittsburgh, Pa.	3.950	3.525	4.000	3.250	3.575	3.775	2.325
Portland, Maine	3.500	2.850	3.000	2.100	3.250	3.225	2.100
Portland, Oreg.	3.650	3.100	3.380	3.000	3.350	3.360	2.550
Providence, R.I.	3.600	2.900	3.200	2.650	3.500	3.200	2.225
Raleigh, N.C.	2.750	2.000	2.625	1.900	2.750	2.750	1.150
Reading, Pa.	3.600	3.000	3.400	2.600	3.250	3.250	2.050
Richmond, Va.	3.500	2.600	3.150	2.250	3.070	3.100	1.400
Rochester, N.Y.	3.685	3.400	3.520	3.150	3.685	3.320	2.640
Rock Island, Ill. (Dist)[5]	3.600	3.040	3.500	3.000	3.250	3.500	2.380
St. Louis, Mo.	3.750	3.450	3.750	3.415	3.800	3.725	2.500
St. Paul, Minn.	3.575	3.150	3.250	3.000	3.250	3.215	2.400
Salt Lake City, Utah	3.770	2.975	3.275	2.760	3.250	3.250	2.100
San Antonio, Tex.	3.500	2.875	3.250	2.500	3.500	3.363	1.375
San Diego, Calif.	3.750	3.225	3.900	3.190	3.725	3.700	2.480
San Francisco, Calif.	3.950	3.175	3.785	3.200	3.690	3.670	2.505
Santa Fe, N. Mex.	3.750	3.025	3.100	2.500	3.000	3.400	1.975
Savannah, Ga.	3.200	2.900	3.250	2.500	2.500	3.350	1.400
Schenectady, N.Y.	3.500	3.175	3.550	2.750	3.500	3.350	2.475
Scranton, Pa.	3.500	2.925	3.250	2.625	3.400	3.250	2.200
Seattle, Wash.	3.750	3.130	3.400	3.135	3.400	3.620	2.700
Shreveport, La.	3.750	2.775	3.375	2.625	3.250	3.150	1.575
Sioux Falls, S. Dak.	3.500	2.575	3.000	2.300	3.000	3.150	1.800
South Bend, Ind.	3.700	3.050	3.380	2.800	3.250	3.375	2.300
Spokane, Wash.	3.890	3.130	3.325	3.000	3.450	3.620	2.400
Springfield, Mass.	3.525	3.050	3.175	2.800	3.525	3.200	2.175
Syracuse, N.Y.	3.600	3.220	3.700	2.850	3.475	3.255	2.450
Tampa, Fla.	3.200	2.675	3.350	2.500	3.200	3.250	1.375
Toledo, Ohio	3.730	3.620	3.650	3.240	3.620	3.650	2.740
Trenton, N.J.	3.850	3.600	4.350	3.200	3.850	3.750	2.600
Tulsa, Okla.	3.750	3.025	3.325	3.000	3.500	3.430	1.900
Washington, D. C.	3.750	3.350	3.750	3.300	3.650	3.760	2.200
Wichita, Kans.	3.625	2.900	3.350	2.625	3.375	3.600	2.100
Wilmington, Del.	3.700	3.350	3.825	2.975	3.450	3.550	2.050
Worcester, Mass.	3.550	3.180	3.250	2.800	3.550	3.150	2.450
York, Pa.	3.325	2.700	3.250	2.350	3.125	3.150	1.850
Youngstown, Ohio	3.740	3.425	3.600	3.200	3.600	3.545	2.645

[1]These scales represent the minimum wage rates (excluding holiday and vacation payments regularly made or credited to the workers each pay period) agreed upon through collective bargaining between employers and trade unions.

[2]Excludes 10 cents vacation allowance which is included in negotiated scale of $3.40.

[3]No union scale in effect on survey date.

[4]Excludes 4 percent vacation allowance which is included in negotiated scale of $3.90.

[5]Includes Rock Island and Moline, Ill., and Davenport, Iowa.

EMPLOYMENT OUTLOOK FOR FIREMEN*

by William Paschell
and William Topolsky

Fire fighters in city and town fire departments have the exciting job of protecting the public against the hazards of fire. Through efficient teamwork, they prevent loss of life and minimize property damage from fire. When an alarm sounds at the station, firemen put on protective clothing and are ready to drive to the scene of the fire in a matter of seconds. They may fight fires ranging from spectacular waterfront blazes, requiring men and equipment from several fire companies, to smoldering trash fires that can be controlled with a fire extinguisher.

Because fire fighting is a dangerous and complicated activity, it must be well organized. The scene of a fire may appear to be one of confusion, with many fire trucks, thousands of feet of fire hose, and firemen working at a feverish pace. Nevertheless, each fireman performs specific duties under the supervision of a commanding officer. Some fire fighters are assigned to forcible entry jobs and use tools such as axes, crowbars, and fire hooks. Others are truckmen, hosemen, and laddermen who unreel and couple fire hose, put on nozzles, turn on water hydrants, direct streams of water on the fire, and set up ladders. Rescue teams carry people to safety and administer first aid. According to the judgment of the officer in charge, fire fighters may be shifted to handle any of these duties. After a fire is put out, firemen carefully inspect the premises to make sure no further danger exists; in this connection, they may put fire fighters on stand-by watch or use hand extinguishers on smoldering objects.

Between calls, fire fighters spend a great deal of time at the local station improving their knowledge of fire fighting and doing maintenance work. They participate in practice drills, lubricate and polish fire-fighting equipment, stretch hoses to dry, stand watch at fire alarm instruments, and verify and record alarms. They may also use their spare time to study fire manuals and textbooks in preparation for examinations. Since many firemen live at the station for one or more days at a time, they may take turns performing various housekeeping duties such as mopping floors or making beds. There is usually some leisure time in which to read, watch television, and play table tennis or other games.

Where Employed

More than 150,000 paid fire fighters were employed in 1958, mainly in city fire departments; only about 10 percent worked in towns and other small communities. The 5 largest cities--New York, Chicago, Philadelphia, Los Angeles, and Detroit--each employ more than 2,000 fire fighters; New York City employs more than 10,000. In contrast, cities with less than 50,000 population usually have fewer than 100 firemen each. A significant number--about 25 percent of all city firemen--work part time. Most of the part-time firemen are paid volunteers in cities with less than 5,000 population. In addition, there are many thousands of unpaid volunteer firemen in small communities throughout the country.

Training and Other Qualifications

To become eligible for appointment as a fire fighter, young men generally have to pass a written intelligence test, a rigid physical examination, and an athletic performance test (running, climbing, etc.) as specified by local civil-service regulations. In most communities, these examinations are open only to men who are at least 21 years of age, meet certain height and weight

*This article is one of a series of reports on fields of work which could not be covered in the 1957 edition of the Occupational Outlook Handbook. It is part of the Bureau's continuing program of occupational outlook research.

COURTESY OF D. C. FIRE DEPARTMENT

Fire fighters use specialized equipment to control raging blaze.

requirements, have been residents of the city for a specified period, and have a high school education. The men who receive the highest grades on their examinations have the best chances of appointment, although credit is usually given for military service. Other factors such as previous fire-fighting training may also be considered. Experience gained as a volunteer fireman may improve a young man's chances for appointment to a regular job.

As a rule, the beginner in a large fire department is given training for several weeks at the fire service school maintained by the city. During this training, formal study is combined with practice drills related to the fundamentals of fire fighting--forcible entry, rescue work, first aid, and the use of equipment such as axes, bars, lifelines, chemical extinguishers, ladders, and pumps. The recruit is then assigned to a local fire company, usually as a hoseman, truckman, or ladderman. After 1 to 5 years of experience, the fire fighter may be eligible for promotion. Eventually he may become an officer; in a large city, the line of promotion is to lieutenant, then to captain, battalion chief, deputy or assistant chief, and finally to chief. Chances for advancement generally depend upon the candidate's position on the promotion list, as determined by his rating on a written examination and on his work as a fireman. Throughout his service, the fireman continues to receive in-service training and spends many hours studying such subjects as hydraulics, ventilation, salvage, fire investigation and

COURTESY OF D. C. FIRE DEPARTMENT

Fireman recruit learns to use lifeline while protected by net below.

incendiarism, and fire prevention. This broadened knowledge helps him pass the subject-matter sections of the promotion examinations.

Among the personal qualities which are important for fire fighters are above average physical stamina, mental alertness, courage, and mechanical aptitude. Leadership qualities and good judgment are valuable assets for officers, since they have the responsibility of establishing and maintaining a high degree of discipline and efficiency, as well as planning and directing the activities of firemen.

Employment Outlook

Several thousand employment opportunities for fire fighters are expected each year through the early 1960's. Most openings will arise from the need to replace men who die, retire, or otherwise leave the occupation; the replacement rate is higher than that for many occupations. A moderate number of new jobs will also become available, as some city fire departments enlarge their staffs and as new departments are formed to replace volunteer fire companies in rapidly growing communities. In addition, some openings will probably be created by further shortening of the workweek for fire fighters.

The number of young men who apply for fire-fighter jobs in large cities is usually higher than the demand, although the written examination and stiff physical requirements always eliminate many applicants. Competition for fireman jobs is apt to be very keen when there is considerable overall unemployment, since this is an extremely stable occupation and especially desirable when many other jobs are less secure.

In the long run, the employment of fire fighters is expected to increase moderately. Major factors which normally lead to an increased need for the services of fire fighters--urbanization, population growth, and increases in building construction--will continue to be partially offset by the strong efforts at fire prevention, widespread use of fireproof and fire-resistant materials in building construction, improvements in the techniques and equipment used to fight fires, and other factors. Many slum areas are being rebuilt or are being improved by the installation of modern cooking, heating, and lighting equipment which reduces fire hazards. In addition, it is expected that fire and building codes will continue to be revised with the growing knowledge of fire-prevention methods, fire inspection will be more thorough and frequent, and fire regulations will be more strictly enforced in growing cities and their suburbs. Despite all the efforts to reduce fire hazards, some growth in the number of regular fire fighters will be necessary as metropolitan areas increase in size. However, the greatest number of employment opportunities will continue to arise as a result of retirements.

Earnings and Working Conditions

Average (median) beginning salaries of fire fighters were $3,600 in small cities (10,000 to 25,000 popula-

tion) and $4,350 in the largest cities (over 500,000 population) in 1957. Beginning salaries were as low as $2,500 in some cities and as high as $5,000 or more in others. Generally, firemen receive salary increases annually during the first 2 to 5 years of service. Maximum salaries of firemen (not including officers) averaged about $4,000 in small cities and $5,200 in the largest ones. Fire chiefs averaged $5,200 in small cities and $13,500 in the largest cities in 1957. At all ranks, some allowance is usually given for uniforms. Protective clothing, such as heavy rubber boots and coats, is furnished.

Full-time fire fighters have a longer than average workweek in most cities. Their hours on duty averaged about 60 a week in large cities and 72 in small ones in 1956. However, in some cities the workweek was 48 hours or less; in a larger number, it was 56 hours, whereas in others it was 84 hours or more. In most cities, firemen are on duty 24 hours and then off 24 hours, with an extra day off at intervals. They must work as many hours overtime as necessary to get a fire under control. As a rule, they receive time off instead of extra pay for overtime work.

The job of fire fighter involves a risk of life or injury from sudden caveins of floors or toppling walls, in addition to the dangers from exposure to flames, smoke, and bad weather. In fighting fires in industrial establishments, firemen may come in contact with poisonous, flammable, and explosive gases and chemicals.

Firemen are generally covered by liberal pension plans, which often provide for retirement at half pay at age 50 after 25 years of service, or at any age if disabled in line of duty. Should disability occur, men may be transferred from active fire fighting to vacancies in such jobs as fire alarm operator or dispatcher. Fire fighters receive regular paid vacations like other city employees. In addition, because of the hazards of the occupation, provisions for sick leave are usually very liberal. Some fire departments allow fire fighters time off for working on holidays, although a substantial number give paid holidays.

A majority of fire fighters are members of the International Association of Fire Fighters, affiliated with the AFL-CIO.

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*This index covers only issues published since the publication of the 1957 edition of the Occupational Outlook Handbook, which this periodical is designed to supplement. It thus excludes the first two issues of Volume 1.

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